

Flight, September 17, 1910.

# FLIGHT

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**SAILING ROUND ST. PAUL'S CATHEDRAL.**—Once more St. Paul's has been encircled by an airship, this time by Mr. Willows, the Cardiff aeronaut. The above photograph is a genuine "snap" of Mr. Willows in his small dirigible upon the occasion of his trip last Saturday from the Crystal Palace over London, round St. Paul's, thence to the Houses of Parliament, and then back to the Palace.

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# FLIGHT SPEEDS OF THE FUTURE.

By JOHN B. MOISANT.

COMING as it does when all interest in the progress of aviation is centred on that problem of future speeds in flight, Mr. Moisant's views of this aspect of the art he has so quickly learned have a truly red-hot interest. Acknowledging the Cup presented to him on September 8th by the *Daily Mail* for his flight from Paris to London, Mr. Moisant expressed views that we have so often reiterated in *FLIGHT*—that high speed was the future of aviation. Mr. Moisant spoke with enthusiasm, and it was the enthusiasm of the kind that will not be denied. Seeing with an almost intuitive eye the ever-widening future for flight in the realm of high velocities, he forced home the necessity of developing speed at all cost on his hearers. Thus far we are entirely in accord with Mr. Moisant; but we go, perhaps, a little further than he does in fondly hoping that higher speeds may be developed without the necessity of resorting to a proportionate increase in power. Mr. Moisant talked of 200-h.p. engines as something of the very near future. Possibly they may be, but we hope that when they come the aeroplanes that they will drive will have either a proportionately higher speed or a greater accommodation than is possessed by present-day machines. By this we mean, as we have explained in detail in those recent articles entitled "Can We Fly Faster for Less Power?" that the invasion of higher orders of speeds may confidently be expected to result in a considerable increase in the efficiency of the planes. On the whole we are inclined to agree with Mr. Moisant to this extent, that the direct method of getting speed by horse-power will probably appeal to those who pioneer the movement, but once the new order has been introduced we shall certainly look forward to a reign of economy. In one thing we certainly have confidence, and that is in the speedy achievement of the desired object so long as men like Moisant remain to take the lead.

Here is what Mr. Moisant said in the offices of our contemporary, the *Daily Mail*, last Thursday:—

"We're only at the beginning—just at the very beginning. Speed is what the man who flies craves for, and speed is what he is just beginning to get. In less than two years' time we shall produce a monoplane with a 200-h.p. engine, which will thrust that machine through the air at 100 miles an hour. This is not idle talk. We can already say that such a machine is but a matter of producing a more powerful engine than we have to-day. And, seeing that a 100-h.p. engine has already been tested satisfactorily, one of double that power is purely a matter of experiment. It will come.

"And let me tell you this. When I can get up into the air on a monoplane like that, and drive it through the air at 100 miles an hour, I shall be able just to laugh at contrary gusts. It will be not only a conquest of the air, but a complete victory over the wind.

Passing so swiftly through the atmosphere, my craft will be altogether unaffected by even the highest of winds. And imagine what this will mean! Picture the uses to which the aeroplane will then be put!

## Metal Aeroplanes.

"But in a couple of years' time, you must understand, the construction of aeroplanes will have altered entirely. They will not any longer be flimsy structures of wood, canvas, and wire. We shall have come to the era of the metal aeroplane. In order to withstand the immense pressure of being forced so rapidly through the air these machines will be built up solidly. Already, you must know, weight is beginning not to count so much as it did.

"Quite soon, in fact, we shall make our wings of metal. Aluminium alloys are already being tested which give extraordinary lightness with remarkable strength. And the bodies of the machines will be of metal, too. They will cleave their way through the air as a metal-sheathed torpedo-boat destroyer does through the water—only at an enormously greater speed.

"Critics sometimes say that, although they can understand a machine leaping into the air at 100 miles per hour speed, they don't see how a safe landing is to be made at the end of the journey at such high speeds. But by the time we are flying at such a pace there will be great 'air stations' dotted about all over the country. A 'Dreadnought' of the sea has to have a special harbour to come into. So will the 'Dreadnoughts' of the air. These air stations will be great open flat places. They will be surrounded by sheds and repair depots. Aircraft will be continually rising from them and arriving at them after long aerial journeys.

## More Powerful Engines.

"You can see now, can't you, how the great passenger-carrying aeroplane, made staunchly out of metal, and flying at speeds impossible on land from one air station to another has become purely a matter of development? The whole thing has fined itself down into a question of power. 'Give us more engine-power,' say the airmen, 'and we'll fly faster than anything that moves on land, and ignore all the wind-gusts that now chain us to earth, besides carrying half-a-dozen passengers where we now take aloft one.'

"And the makers of engines, realising the situation, are directing all their energies towards producing higher powered engines than the present ones which shall be equally reliable. This, of course, means a lot of trial work before perfection is reached. But the goal is in sight. Nobody, except the men who actually fly, can gauge the stupendous progress which is now being made towards producing the perfect flying machine.

"Talk about faulty engines! Why, I have such confidence in the motor that drives my present aeroplane that I've ventured twice over the streets of Paris with it. It has already become the exception for an airman's motor to give him any trouble while he is flying. And remember in how short a time these motors have been made. Remember the enormous tax that is put upon them. And then picture the reliability of the motor which we shall get in a few years. I could preach from this text for hours.

"Anyhow, here's a little announcement to finish with. I shall be competing next summer in the *Daily Mail's* £10,000 race around England. And it will be with an all-metal monoplane. Yes—a machine of my own design, which I'm going to test in Paris in six weeks' time. It will have a big powerful engine put in it for the race. And the whole world will gasp at the things done during that flight. Mark my words."



# FRESH ALTITUDE RECORD—2,680 METRES.

NATURE will automatically put a limit presently to the height to which aviators will be able to rise with comfort and safety, although we can hardly hope that the record for altitude will be regarded as reached until the 3,000 metres have been attained. Chavez, on his Blériot, has come remarkably near to this height, having on Thursday of last week attained the extraordinary height of 2,680 metres at Issy. Starting at 4.30 on his monoplane from Issy Park, he made a rapid ascent until he reached the previously-mentioned figure, and although his motor was working well even at this terrific height, he found that the oil was already frozen, and he deemed it wise to be content with having beaten Morane's record by 100 metres all but 2. Altogether he was in the air for 42 minutes, and the essay was mainly as a preliminary trip in connection with the flight over the Alps, which will be accomplished, probably during next week in connection with the Milan

Flying Meeting. It is interesting to note the remarkable way in which the height record has been increased within the last two or three months, the following being the records as they have been made in their order:—

Chavez (Blériot), Issy ... ..	2,680 metres.
Morane (Blériot), Le Havre ... ..	2,582 "
Drexel (Blériot), Lanark ... ..	2,060 "
Brookins (Wright), Atlantic City ... ..	1,904 "
Olieslaegers (Blériot), Brussels ... ..	1,720 "
Latham (Antoinette), Rheims ... ..	1,384 "
Paulhan (H. Farman), Los Angeles ... ..	1,269 "
Weymann (H. Farman), Mourmelon ... ..	1,250 "
Lieut. Vivaldi (M. Farman), Rome ... ..	1,250 "
Wynmalen (H. Farman), Mourmelon ... ..	1,100 "

## FLIGHT PIONEERS.



MR. ROBERT LORAINE (MR. "JONES").

## WEYMANN'S SPLENDID CROSS-COUNTRY PASSENGER FLIGHT.

DAY by day as more extended, more daring, and more astonishing flights carried out in a masterly way without a hitch or hesitation of any sort become facts of the past, it is getting beyond even "dreamers" to think where the ultimate end is going to be. What with the extraordinary heights attained, one surpassing the other, the long-distance flights, with and without passengers, and the cross-sea trips by the score, which only three months back would have been regarded as epoch-making, culminating in Mr. Loraine's Irish Channel flight, it is difficult to know when to let enthusiasm have its fling over any fresh achievement, or take up the attitude of merely chronicling facts as they occur. First comes Mr. Drexel's high flight at Lanark, hugely surpassed almost immediately by Morane, he again bettering his own performance within a day; and now again, even before they have had time to be formally recorded officially as records, these stupendous performances are once more lowered by the extraordinary altitude flight of Chavez at Issy on Thursday of last week, when he is credited with having reached the astounding height of 8,790 ft. Then, again, the London-Manchester flight of Paulhan was hardly past before a series of other cross-country flights of long distances were accomplished, topped by Mr. Moisant's remarkable achievement between Paris and London, to be equalled in nearly all degrees and in some surpassed by Bielovucic's splendid three-stage flight between Paris and Bordeaux recorded by us last week. Before the printing ink was hardly dry on last week's issue of **FLIGHT**, Weymann—who, by the bye, hails from America—once more adds to the steady advance by his great and almost successful effort to annex the Michelin Cup, which was generously offered by Mons. Michelin about a couple of years ago, and which in those days even Mr. Henry Farman himself thought would not be likely to be won until many years had passed. It was hardly conceivable by the greatest optimist that within two years anything approaching a flight with a passenger from Paris to Clermont-Ferrand, a distance by railway of over 250 miles, should be accomplished by a pilot in an aeroplane, carrying with him a passenger, in a maximum time of six hours. Not only had the competitor for this prize to fly the actual distance, but at the end of the journey it was necessary for him to alight at the top of the famous Puy de Dome mountain, which is within five miles of

the west of Clermont-Ferrand, after having circled round the Cathedral of that town. The sum offered of £4,000 is, of course, a great inducement, and it is quite evident from the work of Weymann that it will be now but a very few weeks before this grand prize will be annexed. The one feature in the rules which renders the task slightly less onerous is the fact that descents may be made to any extent *en route*, but against this the time limit is to be taken into consideration, as every minute lost in descending and taking on replenishments necessarily means precious moments whittled off the maximum of six hours allowed in which to cover the distance between the two points specified in the conditions regulating the prize. Had it not been for a storm encountered, and for fog and mist at the latter end of the journey, there is little doubt that Weymann would have succeeded in reaching his destination within the time allowed, in spite of a contrary wind. As it was, he managed to cover 420 kiloms. before having to give up for the time his attempt.

Starting on Wednesday of last week from Buc on his Henry Farman, having on board with him Mons. Faye as passenger, he passed over the flying park of the Aero Club of France at Saint Cloud at 11h. 58m. 59s. by the clock, thus necessitating him actually alighting at the top of the Puy de Dome—5,800 ft. above sea level—at 5h. 58m. 59s. also by the clock, in order to secure the prize. Taking a line at a height of 350 metres direct across Issy, he made at a big speed direct for Melun. Passing over the Loire at Gien at 1.40 p.m., his first stop was at 3 p.m. at Neronde, where he made a fine descent, and within five minutes he had replenished his stock of petrol and was up again, passing over Nevers at 3.15, and descending again at Chantenay St. Imbert, about 32 kiloms. the other side of Nevers, having at this point covered 290 kiloms. Unfortunately from here he encountered a storm which delayed him best part of an hour. Taking the air again at the earliest moment, at 4.30 he had reached Montlucon, which he passed over at a fairly low elevation, bearing away then in the direction of Gannat, and passing the latter place at 5.40. Immediately afterwards he entered the Department of Puy de Dome, although he still had a considerable distance to travel; but the mist by this time was troublesome, and he found it impossible to continue beyond Volvic, just beyond



Mr. Weymann, the record flyer, who last week, on his Henry Farman, flew from Paris to Volvic, 420 kiloms., in his great attempt to win the big Michelin prize for flying with a passenger from Paris to the Puy de Dome mountain in 6 hours. With him is M. Faye, who accompanied him as passenger.



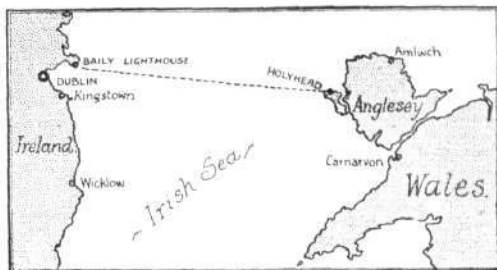
Riom, especially as by the time he reached the latter place—close upon 7 p.m.—the maximum time had been exceeded in which it was necessary for him to finish at the Puy de Dome and, moreover, he had learnt that the mountain itself was wrapped in fog. The total distance which he had actually flown to this point was 420 kilometres.

## MR. LORAINÉ'S IRISH CHANNEL FLIGHT.

MR. ROBERT LORAINÉ, after his attempted start for Dublin, which we recorded last week, followed by the accident to his machine, was not to be discouraged by so trifling a matter, and it is only in keeping that he should have almost immediately made another and practically successful attempt, so that he may literally be "the Man from the Sea" when he appears in that play, which is due to be produced next week in London. His crossing may be said to have been accomplished, as he reached within about 200 ft. of the Irish shore. Starting at 11.5 from Holyhead on Sunday morning last, having found that his engine was in good working order, he reached the Irish coast close to the Bailey Lighthouse, Howth, when, the last of a series of engine stops brought his machine down in a gentle glide into the sea. Unfortunately for Mr. Lorainé, after the aeroplane struck the water she turned turtle, landing the pilot head first into the water; but being a powerful swimmer he had no difficulty in striking away from his entanglement and swimming with ease to the adjacent lighthouse. The final failure of his engine was due to petrol supply.

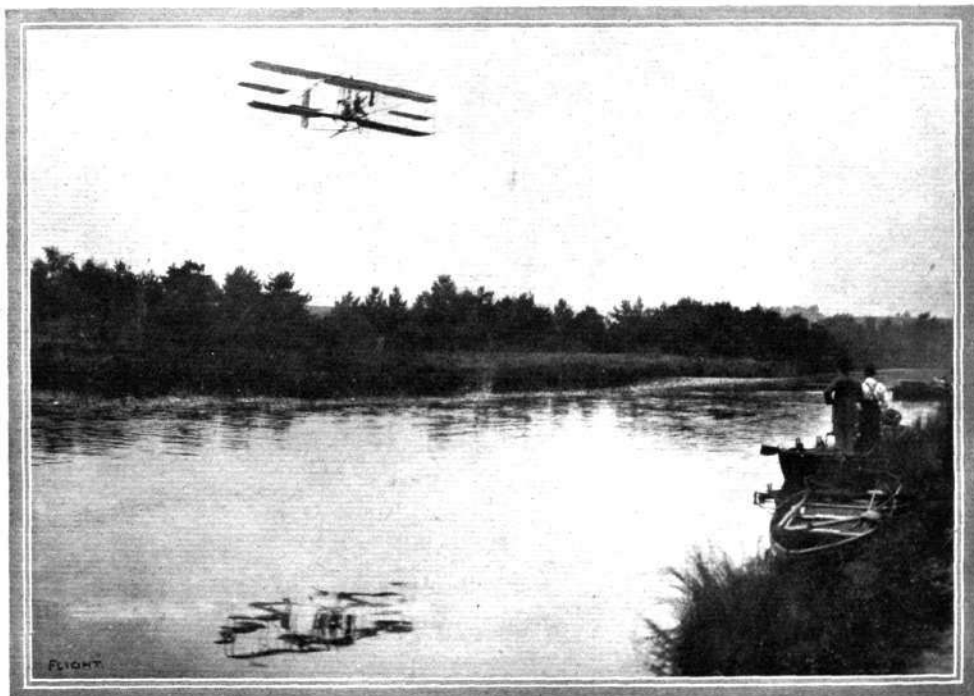
Immediately after his start for the journey he rose to a considerable height, attaining an ultimate altitude of fully 4,000 ft. Having travelled about a third of the distance he found his engine working badly, and soon after it stopped altogether, the machine descending at a great pace towards the sea. By good fortune, after a swift glide of about 2,500 ft., the engine re-started, and he was able once more to rise to his 4,000 ft. altitude. This single experience would have been bad enough, but practically the same thing occurred five times more before he reached the Irish end of his journey. It was with considerable relief, under the circumstances, that he ultimately discerned the Howth promontory through the bank of cloud and mist which hung over the Irish coast. His original intention of continuing his flight on to Phoenix Park, and there descending, was obviously out of the question in

view of the intermittent working of his motor, and he therefore resolved to come down in any case on Howth Head. In facing the wind when nearing the coast he had further trouble by the snapping of a wire, several other wires having previously given out, and this more than ever determined him to shorten his journey, with the result as already noted, and thus ended the splendid flight of



Sketch map of Mr. Lorainé's flight across the Irish Channel.

Mr. Lorainé. Captain Kinch, of the steamship "Adela," luckily had followed what was happening, and made for the derelict aeroplane in the sea, and by the time that Mr. Lorainé had put off to the "Adela" in a boat from the lighthouse, his machine had already been practically salvaged, and he was able to have the satisfaction of personally ascertaining the amount of damage it had sustained. The same evening Mr. Lorainé returned from Dublin to Holyhead.



Mr. S. F. Cody, as we have recorded, is once more doing practical work with his new biplane. Our photograph shows Mr. Cody in flight passing over the Basingstoke Canal.

# TWISTED ELASTIC MOTORS.

By W. LANGDON - DAVIES.

THIS article, which is published especially for the benefit of those of our readers who make working model aeroplanes, contains the data that is necessary to enable them to calculate the amount of elastic that will be required for the motor. The figures and conclusions have been drawn from an exhaustive series of tests conducted by Mr. W. Langdon-Davies, who has made a special study of this subject, and is, we believe, the first to carry out any such experiments.

To obtain exact figures of the torque, number of revolutions, variations of torque during untwisting, &c., of the twisted elastic motors used for driving model aeroplanes, I have made the following tests, and as the figures obtained may be of use to others I venture to offer them to readers of FLIGHT.

The elastic used consisted of  $\frac{1}{16}$  in. square strands, 1 ft. long, well lubricated with French chalk.

Six sets of 2, 4, 6, 8, 12, and 16 strands were tested in the same manner; each set was twisted until it broke, and the torque produced measured at intervals of the twisting.

The torque at the moment of breaking could not of course be taken, and was found by continuing the curve.

In no case did the elastic break at the ends, or at the place where the last strand was joined; the break almost always occurred near the centre.

The torque increased rapidly from zero while the elastic was twisting in a straight rope about its own centre; the increase was very much slower when the first knot had formed, and only increased slowly until the length of the whole rope was filled with the first series of knots; the torque then increased rapidly again until the second series of knots commenced, when the increase again became less rapid.

A complete second series of knots was never arrived at, for more than four strands, before breaking occurred.

Curve III shows that the total work obtainable is in direct proportion to the cross section for equal lengths of elastic, and is therefore directly proportional to the weight of rubber.

From these data we can calculate that if a model allows of only 1 ft. length of elastic, and requires an average torque of '158 oz. at 2 ins. r., the necessary torque can be obtained with 11 strands of  $\frac{1}{16}$  in. sq. (see curve II), and this will give 166 working revolutions (curve I).

If more revolutions are required the strands cannot be increased, as the revolutions will be decreased (curve I). If the strands are decreased more revolutions will be obtained, but the torque will be decreased.

It should be remembered that the total number of revolutions of the screw, all other things being equal, controls the distance flown for a given average torque.

Three further sets, all of four strands of the same elastic, 1, 1.5 and 2 ft. long, were tested in the same manner. The result is given in Table II.

TABLE II.—Four strands  $\frac{1}{16}$  in. square.

Length in ft.	Average Torque.	Revolutions.	T x R.
1	'355	283	101
1.5	'371	423	157
2	'377	544	205

From this table it is seen that for variations of length for constant cross section the torque is practically constant. The revolutions

TABLE I.

Strands $\frac{1}{16}$ in. square, 1 ft. long.	i. 75 per cent. of Breaking Twists = Revolutions.	ii. Average Torque for Working Revolutions in ozs. at 2 in. Radius.	iii. Working Torque x Working Twist.
2	402	'13	52
4	283	'355	100
6	234	'713	167
8	203	'975	198
12	156	1'75	273
16	143	2'77	393

Table I is derived from these six tests. Column i gives 75 per cent. of the breaking twists, and these are taken as the working twists, or the number of twists the elastic can be safely wound up to, or the total possible number of revolutions obtainable from the screw.

Column ii gives the average torque in ounces at 2 in. radius, over 75 per cent. of the curve from zero to breaking point.

Column iii gives the torque x revolutions (not per unit of time), and shows the total work obtainable.

The curves I, II and III are plotted from columns i, ii and iii respectively; the points from which they are derived are shown, for I by circles, for II by crosses, and for III by a cross in a circle.

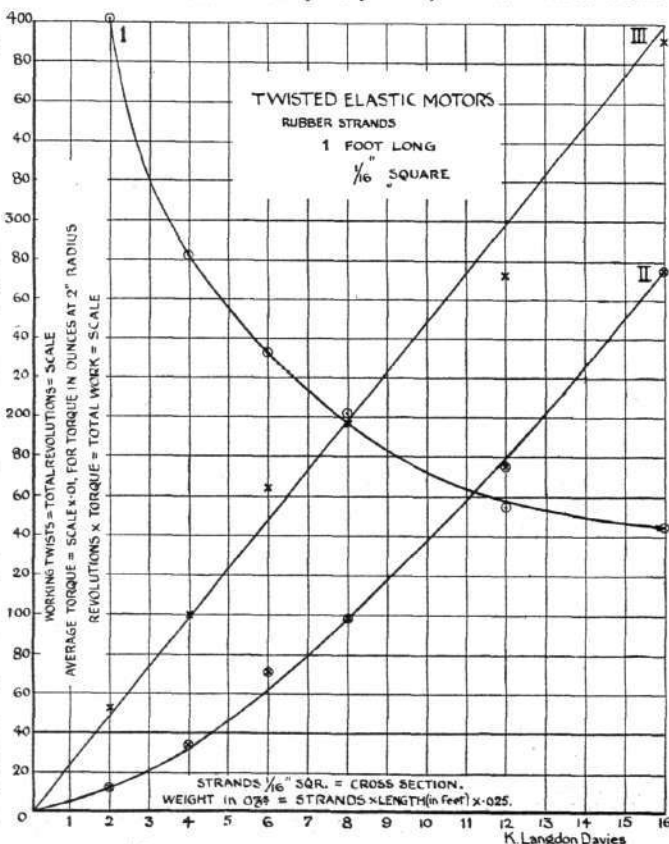
The vertical scale gives, for curve I the revolutions, for curve II one hundred times the torque at 2 ins. r in ounces; the real torque is therefore the scale figure divided by 100, or multiplied by '01. This has been done for convenience of drawing only.

For curve III the scale figures give the total power obtainable from the various cross sections, and therefore weights of elastic used.

The horizontal scale gives the numbers of strands, and therefore cross sections, used, all strands being 1 ft. long.

Curve I shows by its shape that the possible working revolutions decrease as the cross section of the elastic is increased. The numerical value of any point on the curve gives the number of working revolutions obtainable, and depends, among other things, on the elasticity, i.e., quality, of the rubber.

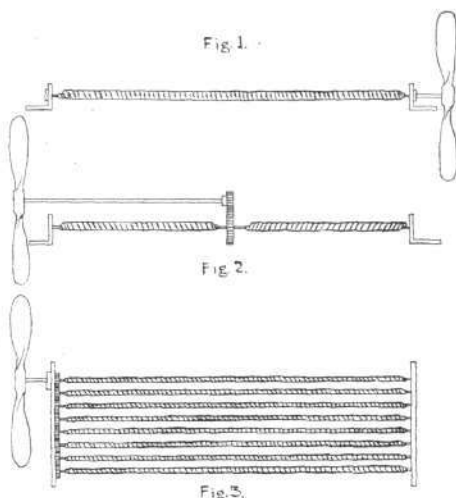
Curve II shows that the torque increases as the cross section increases.



increase directly as the length, and the total power also increases directly as the length, and therefore as the weight.

It would be expected that the power obtainable should vary as the weight of rubber, however it was arranged, and whether the variations were in thickness or in length.

We now have the two facts established, viz., that the torque increases and decreases with the cross section only, and the number



of revolutions can be taken to vary only with the length, for cross sections above 16 strands, and, as shown in curve I, for lesser numbers of strands.

As a working figure, it may be taken that any number of strands above 16 will give 120 revolutions multiplied by the length in feet up to, say 50 strands. It is hardly likely, for other reasons, that greater thickness would be used, but if it should be, take 100 multiplied by length for the revolutions.

The use of these figures will be best understood by taking a few examples.

Figs. 1 and 2 represent two motors as used in practice, and which therefore need not be described in detail. Each is supposed to consist of 16 strands of  $\frac{1}{16}$ -in. sq. elastic; in Fig. 1, 2 ft. long, in Fig. 2, two lots of 1 ft. long. Thus there is the same weight of elastic in each.

The curves show that in Fig. 1 the torque is 2.77 ozs., and with the help of Table II the revolutions will be 286; therefore the total work = 782. This may be called a high-speed motor.

In Fig. 2 each rope of 16 strands gives a torque of 2.77 ozs. As the ropes are fixed to the same revolving part, viz., the centre gear-wheel, the total torque is doubled = 5.54; but as the length of each rope is now half, the revolutions = 143, but the total work obtainable is the same = 782. Since the weight of the elastic is the same, this may be called, with respect to Fig. 1, a slow-speed motor of the same power.

If the same screw is used, it should therefore be geared up as shown to obtain the same speed.

The advantage, if any, of Fig. 2 over Fig. 1 lies in the end pull of the elastic being taken at fixed ends; the thrust of the screw remains, and the friction of the gear is added; the advantage then lies between the loss by the end pull on a suitable bearing to the loss by gearing.

Of course, if a slow-speed screw that is equally efficient can be used, so much the better.

Fig. 3 shows another way in which the sixteen 2-ft. strands might be grouped, viz., in eight ropes of two strands each; all the ends at one end are geared together, and one of the gear-wheels is fitted with the screw. All the other ends are fixed, the screw is wound up in the usual manner, winding the remaining ropes, by means of the gears.

The torque will be 1.04 ozs. (that is,  $\frac{1}{16} \times 8$ ), the revs. = 804, and the total work = 835, the same practically as before; this gives a high-speed motor as compared with Fig. 1, though owing to the loss by friction of the gears it may not be an improvement, but these examples serve to show how a number of groupings can be arranged to vary the torque or revolutions, to suit the screw without altering the length or weight.

Want of space prevents me from giving the torque to twist curves from which the above figures have been obtained, but, as I have briefly described, the torque is very irregular during the period of working; it therefore seems to me that the screw most suitable for this kind of motor should have as high a moment of inertia as possible, even with an increase of weight such as lead blade-tips, so that it may store up and therefore smooth out these inequalities. To grind down to waste the peaks of the torque curve, by not using a ball-thrust, and thereby making the screw run steadily, is not a good plan, though I have known it to be suggested.

## BRITISH ASSOCIATION AERONAUTICS.

As might be expected, the science of mechanical flight came in for some consideration at the British Association meeting at Sheffield last week. Fortunately, moreover, its interests were advanced in consequence, although in a totally unanticipated and in a somewhat unorthodox manner. The treatment of the subject had been entrusted to Professor G. H. Bryan, who opened a discussion on the principles of mechanical flight before a joint meeting of the engineering, the mathematical, and the physical sections. As events turned out, Professor Bryan proved to belong to that school of thought which deprecates the ability and utility of the practical man in comparison with that of the mathematician and the scientist, at any rate during the initial stages of any such new development as aviation; and he went so far as to speak of the epoch-making flights of the present day as being evidences of foolhardiness rather than of bravery, because he was pleased to imagine that a lack of equilibrium and stability rendered impracticable the present-day experimental machines, and that only one or two exceptionally

capable mathematicians were capable of making substantial progress at the immediate moment.

Ultimate, and as we trust permanent, good resulted from this peculiarly biased and misleading onslaught, since it brought forth the most vigorous protest from many prominent men, and thereby helped to lay by the heels an all too popular misconception of the present position of the new science. Sir William White, in particular, made scathing reference to the disappointing nature of those "beautiful mathematical formulæ" which generally have a coefficient to make them work; and he pointed out emphatically that if it had not been for the practical airmen of the past year or two, who had gone up into the air and taken the risk, that we should not be where we are now in the development of the aeroplane.

Mr. Dugald Clerk and Mr. Worby Beaumont, amongst others, assisted materially in neutralising the mischievous effect of the views aired by Professor Bryan.

### 250,000 Francs for a Race and a Counter Proposition.

A VERY sporting proposition has been put forward by Mons. Quentin Bauchart, a member of the Municipal Council of Paris, that a big circuit race round France shall be organised next year for aviators, to include as main points Paris, Bordeaux, Toulouse, Marseilles, Lyons and Dijon, a total of about 1,000 miles—in fact, a contest very similar to the *Daily Mail* all round England race for £10,000, in July next. M. Bauchart is urging the Paris Council to vote for this project a sum of £8,000 to be awarded as prizes, this being, he contends, the finest means of helping forward rapidly the advance of aviation in a similar manner to the big circuit prizes which were given in connection with motorism in its early days.

By way of a counter suggestion to this, the L.N.A. have suggested a mere circuit for this prize would not do so much good in benefiting the growing industry as if the money were allocated as prizes to a competition for motors and propellers, as by the perfecting of these two indispensable parts of the aeroplane, efficiency will be obtained more rapidly, which will do more to help forward the whole industry than any tour could possibly do. Both sides have very good arguments on their side, and we should like to see not only in France, but in England, two similar projects carried out as it were complementary to each other. Already we have the magnificent £10,000 prize of the *Daily Mail* for the all-round England race. It is only the big prize wanted now for the encouragement of the motor and the propeller.

## ROUND-ABOUT FRENCH NOTES.

By OISEAU.

SOME days ago I drove with Mr. Maurice Farman to his aerodrome at Buc, near Versailles. In Buc he has discovered a place suitable for flying, and sufficiently remote to prevent crowds of inquisitive trippers arriving to make life painful and flying dangerous to the unskilled flier. Mr. Farman shares the ground with M. R. Esnault Pelterie, who has six or seven machines there, which, however, make very few appearances.

Almost every night several pupils of Mr. Farman make practice flights even in quite strong winds. Unlike Issy, there are neither buildings nor hills to set up strange currents, which cause unexpected accidents. On the night of my visit I saw seven flights of considerable length, and, contrary to established practice at most aerodromes, not a single smash enlivened the proceedings. Most of the pupils are French army officers qualifying for inclusion in the Military Aviation Corps. In addition to the Maurice Farman machines already owned by the Government, eight more have been ordered.

The Maurice Farman biplane is sufficiently well known to render a detailed description unnecessary. The vertical curtains once employed have now disappeared from the main planes, though the Voisin type of elevator and wheel control is still retained. On the later machines the skids are carried up to the elevator after the manner of the Sommer, and on some the Henry Farman landing chassis is employed. The planes are double surfaced, and the control wires are all duplicated.

This machine is one of the last types of the pure biplanes built in France. The Voisin, Breguet, and Goupy have all abandoned the front elevator, and adopted the monoplane tail, whilst Mr. Henry Farman, though he has returned to the biplane tail, has so cut away his lower main plane as to make it almost a negligible quantity save as a sort of platform on which to place the engine, tanks and pilot's seat. As the two Farman businesses have now been amalgamated, the two machines are simply different types of the same biplane, so that purchasers may have a choice of either system.

Mr. Maurice Farman speaks very highly in favour of the eight-cylinder air-cooled Renault motor which he fits to the majority of his machines. Both for all round efficiency and for durability he considers it unrivalled. He has used one for a period of over eighteen months without having had the least trouble, and to-day it shows no signs of wear. There are certain other engines which have been more successful in a spasmodic manner, but at the cost of many sleepless nights to the unfortunate mechanics, who have to prepare for the next day's success by a lengthy vigil, replacing badly-worn working parts and burnt-out valves. And it is not every aviator who cares to purchase evanescent "success" at the cost of replacing worn-out motors at frequent intervals. It is better to have a motor capable of running steadily and safely for considerable periods of time with the minimum of attention, than one which, though it can help an aeroplane to attain a greater speed or a greater height, requires the constant unrelaxing attention of a highly-trained staff. Therefore, I think there is great scope for the Renault motor, if it really fulfils the claims made for it by its users.

On Thursday last I went to Issy les Moulineaux to see Chavez make an attempt on the height record during his practice for the crossing of the Alps. He used the Gnome engined cross-Channel type of Blériot now so popular over here (which type, by the way, was used by both Leblanc and Aubrun in the Circuit de l'Est, despite the hundreds of "faked" photographs sold everywhere showing them both in "fan-tail" Blériots). I am afraid I cannot give any luridly dramatic account of my own impressions as a spectator or of M. Chavez as the performer, but readers of the daily press will have mis-sed nothing. The simple truth is that the performance was quite uninteresting to watch. M. Chavez rose in a series of erratic spirals until he was almost out of sight, occasionally disappearing for brief moments into fleecy clouds. Having learnt prudence from the precipitate fall of M. Morane at Deauville last week he began his descent immediately his engine showed signs of stopping. He attained his greatest height over the Bois de Menden some miles from Issy. From this point he performed a splendid *vol plane* landing after a straight glide of several minutes in the centre of the aviation ground, very cold and slightly fatigued. An altitude of 2,682 metres was recorded on his barograph, which height, if confirmed after the usual tests, constitutes a world's record.

The Comte Jacques de Lesseps was practising on an XI bis Blériot for the Puy de Dome flight, which, his brother told me, he intends to attempt on the first favourable opportunity. I think backed as he is by M. Blériot's perfect organisation he stands every chance of success.

I send you a photograph of a monoplane recently designed and built by M. Raoul Vendome. The general construction is extremely strong, the fuselage, which resembles slightly the Le Blon Humber, having successfully borne the weight of six men without any signs of breakage. Lateral stability is controlled by ailerons, worked by the hand-wheel seen in the photograph. This wheel is mounted on a lever, of which the forward or backward movement operates the elevator. Steering is by a foot-lever, as on a Blériot. M. Henry Jacques, who has already purchased three of these machines, has made some excellent flights during the last few days. He has very kindly placed one at my disposal for practice purposes, so that shortly I shall be in a position to give personal details of its behaviour in the air.

I should like to give a warning to foreigners intending to purchase aeroplanes or engines in France. Great care should be observed in the selection of agents for this purpose, and, whenever possible, arrangements should be made directly with the manufacturing firms. There are many small agencies willing to supply such things as the Gnome motor at what they call a low price, but the delays purposely made entirely remove any advantage accruing from the reduction in price. So far as possible no deposit should be paid, as I am afraid many agents deliberately put difficulties in the way so that clients may be induced to forfeit the deposit and throw over the whole business in disgust. "To-morrow" is the universal and incessant cry of such French firms, and the stream of "to-morrows" imperceptibly lengthens into months before any business is satisfactorily settled. I have personal reason to know



M. HENRY JACQUES AT THE WHEEL OF THE NEW RAOUL VENDOME MONOPLANE.—The wing span is 9.5 metres, length 7 metres, motor 3-cyl. 25-h.p. Anzani, and Vendome propeller.



the accuracy of this statement as I was promised delivery of a monoplane on the 1st July, and yet to-day that monoplane is not ready. Had I foolishly paid a deposit, the position would have been still worse. As it is, I have cancelled the order.

Mr. Dick Farman tells me that the Farman brothers intend at an early date to prosecute all those in England and elsewhere who have infringed the patents held by the firm, particularly as regards the landing chassis.

Further, in regard to the Wright patents, he says that



## HAVRE-DEAUVILLE-TROUVILLE MEETING.

ONLY one more day to complete this remarkably successful fortnight remained to be carried out at the time of our going to press last week, and as a wind-up to the series of fine flights the final day could hardly be classed as on a par with what had already gone before. Some excellent performances were nevertheless witnessed by the very large crowd which rushed to the Deauville aerodrome in the afternoon, many of whom had put off till the last day their visit to the flying grounds.

Molon at 1 o'clock sharp was off the ground, securing the prize for the first up, although Audemars, Mamet and Bouvier were only a moment or two after him. Audemars remained up over a distance of 16 kiloms. in 13 mins. 2½ secs., while Bouvier, after a few turns round the 'drome during which both Simon and Kuller were in the air, returned to earth. For the first time Poillot took his turn at flying, his machine being a Savary. Unfortunately for him he had been stopped by the officials from previously taking part in the meeting, as the entry had been made in the name of Savary, the constructor of the machine. After considerable trouble and finally reference to the Commission Sportive of the Aero Club, he obtained a ruling in his favour for flying. He lost no time in giving effect to the permit. Starting at 1.38 he made six circuits of the ground, a distance of 16 kiloms., in 9 mins. 53½ secs., about the best time so far for a biplane, except the Goupy machine, which was timed for exactly the same. Unfortunately for Poillot at about 5.30 when he rose again with the intention of making a cross-country flight to Villers-sur-Mer, he was caught in a whirl of wind at an awkward point near the grand stand, which brought him down sharply to the ground, putting his machine out of working order. Amongst other flights for speed over 19.2 kiloms. were Morane in 12 mins. 48 secs., Latham in 15 mins. 53 secs., Simon in 14 mins. 8 secs., Aubrun in 13 mins. 35 secs., and Kuller in 17 mins. 51 secs.

Soon after 3, the aviators qualified for the big prizes were at liberty to increase their totals. Ladougue was soon up as well as Busson. Hanriot made an excellent high flight, although his alighting was not quite as smooth as usual. In the evening matters were brought to a close with the flights of Ladougue, Aubrun, Mamet, Wienziers, Molon and Hanriot. Wienziers rose to 272 metres, Morane reaching 1,000 metres, whilst Latham further topped Morane with another 200 metres, coming down with an impressive *vol plane*. Wienziers afterwards for a couple of circuits of the 'drome carried a passenger, and although the weather was not as good as might be wished, the termination of the fortnight's flying was universally regretted by the many who had been constant attendants on every day of the meeting.

Mr. Henry Farman has purchased from an Italian gentleman patents which anticipate clearly the combined flexing of wings and rudder control on which the Americans' claims rest. The sooner these prosecutions take place the better and something settled one way or the other, as the condition of affairs has for some time been most complicated and unsatisfactory. A man has undoubtedly the first claim to the products of his own intellect, but it is clear that under present conditions in aviation he does not get the benefit. Therefore, let the law decide.

The prizes for the day were—Molon for the first away, Latham for height prize, Audemars for speed with 9.6 kiloms. in 8 mins. 1½ secs., and total distance Aubrun with 227.2 kiloms., Kuller being second with 150.4 kiloms.

Results for the grand prizes for the entire meeting:—

- Total Distance** (15,000, 8,000, 5,000, 4,000, 2,000, 1,000 frs.).
1. Simon (Blériot), Gnome motor, Bosch magneto, Chauviere propeller, toiles. 1,226.6 kiloms.
  2. Latham (Antoinette), Antoinette motor, Bosch magneto, Normale propeller. 1,066.8 kiloms.
  3. Aubrun (Blériot), Gnome motor, Bosch magneto, Chauviere propeller, toiles. 637 kiloms.
  4. Mamet (Blériot), 627.2 kiloms.
  5. Morane (Blériot), 466.6 kiloms.
  6. Kuller (Antoinette), 439.6 kiloms.
  7. Wienziers (Antoinette).

- Longest Single Flight** (10,000, 5,000, 3,000, 2,000 frs.).
1. Latham (Antoinette), 112 kiloms. at Havre; 123 kiloms. at Deauville.
  2. Mamet (Blériot), 106 kiloms. at Havre; 84 kiloms. at Deauville.
  3. Aubrun (Blériot), 82 kiloms. at Havre; 131 kiloms. at Deauville.
  4. Simon (Blériot), 96 kiloms. at Havre; 116 kiloms. at Deauville.

- Altitude** (14,000, 6,000 frs.).
1. Morane (Blériot), 2,040 m. at Havre; 2,582 m. at Deauville.
  2. Latham (Antoinette), 1,220 m. at Havre; 1,340 m. at Deauville.

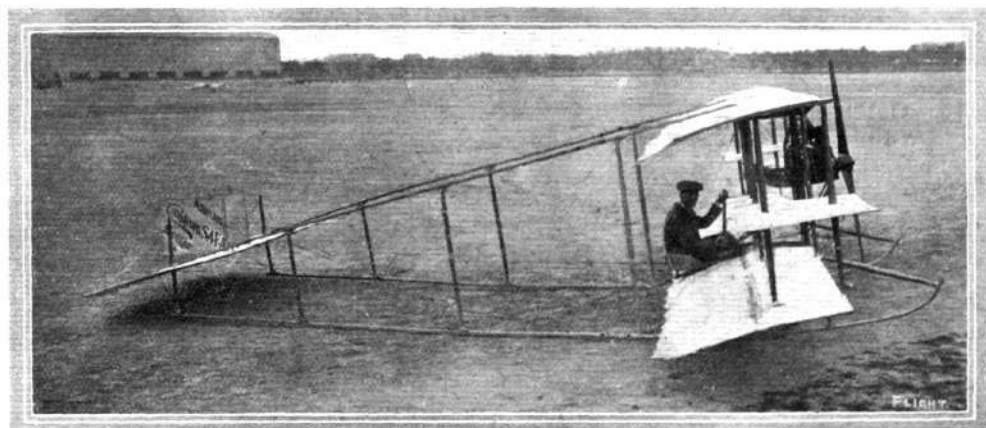
- Total Altitudes** (3,000, 1,500, 500 frs.).
1. Morane (Blériot), 8,973 metres.
  2. Latham (Antoinette), 6,723 metres.
  3. Hanriot (Hanriot), 1,385 metres.

- World's Altitude Record.**
1. Morane (Blériot), 2,582 metres.

- Speed** (19.2 kiloms.) (10,000, 3,000, 2,000 frs.).
1. Morane (Blériot), 12 mins. 48 secs.
  2. Aubrun (Blériot), 13 mins. 35 secs.
  3. Simon (Blériot), 14 mins. 8½ secs.

- Passenger Carrying.**
1. Wienziers (Antoinette), 60.8 kiloms.

- Over-Sea (Seine Bay) Flights** (10,000, 8,000, 7,000, 5,000 frs.).
1. Latham (Antoinette), 16 journeys in 3h. 34m. 36½s.
  2. Morane (Blériot), 11 journeys in 2h. 1m. 22½s.
  3. Aubrun (Blériot), 9 journeys in 1h. 42m. 47½s.
  4. Leblanc (Blériot), 6 journeys in 1h. 13m. 23s.



Biplane of the Soc. Anom. Français d'Aviation constructed by MM. Caudron Freres, which last week was flying at a high rate of speed at Issy. M. Rene Caudron is in the pilot's seat.

## BORDEAUX FLIGHT MEETING.

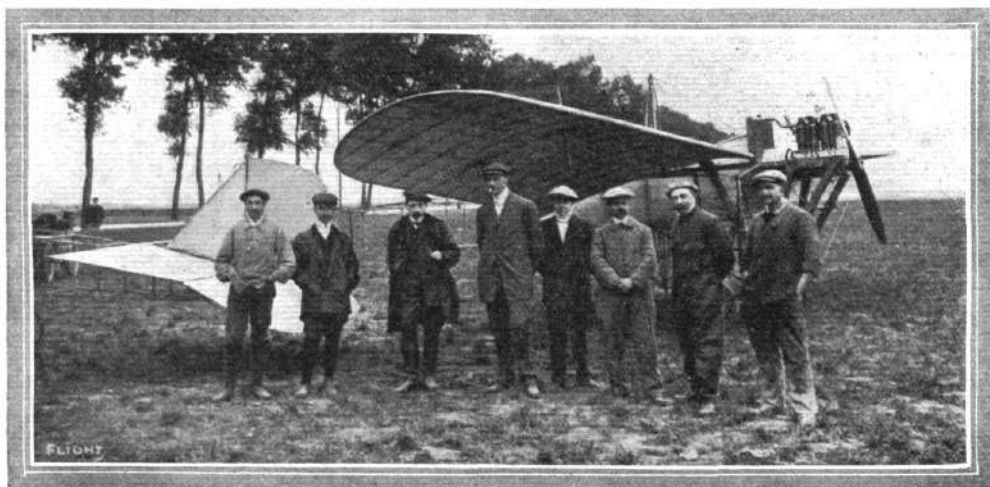
WHEN the dates of September 11th to 18th were originally ear-marked for the Bordeaux aviation week, as the official flying meeting of the Aero Club of France, difficulties in regard to the prize money and other questions arose, which culminated in an official notice being issued, that the meeting would not be held this year. Subsequently, without any apparent explanation, the whole meeting was revived, and it is no small credit to those concerned, that the work which had to be accomplished in a comparatively short time in rendering the aviation grounds at Beau-Desert suitable for the important meeting to be held there, has been carried out with such a degree of thoroughness as was presented on the opening day of the meeting on Sunday last. There were a few hitches in regard to the general arrangements, but taken as a whole the grounds may be regarded as being of a highly satisfactory nature for the purpose for which they have been destined.

The official opening was at 11 o'clock, this being signalled by the firing of cannon and the hoisting of a red signal by the Judges. Almost as the cannon boomed, three biplanes were seen to rise into the air, one of these being Bielovucic on his Voisin, the others Rigal and Bregi. Bregi remained up a quarter of an hour, but Rigal in descending 5 mins. after his start made a bad landing, with damage to his machine, putting him out of the running for at least a couple of days. At 11.20, Thomas on his Antoinette was around the aerodrome for 10 mins., Martinet rising to take his turn as Thomas returned to earth. At 11.35, Simon on his Blériot started work for the long-distance competition, his first turn round the aerodrome being accomplished in the smart time of 1 min. 55 secs. Martinet soon after descended at his hangar, taking another turn about an hour afterwards for 17 mins. When passing in front of the grand stands presently Simon had a stop with his motor, but by very expert handling he was able to right the machine and make a gliding flight to earth, stopping when within a few yards of the barriers outside the popular enclosure. All this time Bielovucic was steadily totalling up a score for the long-distance competition, whilst Kuller on his Antoinette and Parent on a Poullain-Orange were both flying at low altitudes. At one minute past one, Ruchonnet on an Antoinette took his turn, remaining up for 20 mins., Bielovucic finishing his long flight at 1.34, having been in the air for 2h. 31m. 11½s., covering in that time 160 kiloms.

The opening of the altitude contest was down for three o'clock, and Morane was the first to make a try for this. In the meantime, Simon, Bielovucic, Thomas and Bregi were again all hard at work adding to their totals for the long-distance contest. Morane found, however, the wind too gusty, and after a few minutes he returned to the aerodrome, to restart, however, almost immediately. After two rapid turns round the course he gradually narrowed his circle, rising to 1,140 metres, flying thus for a period of 16 mins. 29½ secs., then coming down with a fine gliding flight in front of the grand stands. Soon after he again rose on his monoplane, and this time he slightly bettered his previous height, attaining an altitude of

1,200 metres. In the meantime Bielovucic had returned to his shed, a slight flaw in the machine having developed. Thomas and Bregi, in an attempt for height, each rose to about 520 metres. Towards the close of the day's events Van den Born took round the aerodrome, as passengers, two officers of the 6th Regiment, whilst a bevy of flyers, including Parent, Ruchonnet, Thomas, Martinet, Mollien, Morane and Tyck were steadily working up their scores at various heights for the long distance prize, Tyck, after rising to a considerable height, making a big detour entirely outside the aerodrome across country and landing 7 kiloms. away. For the day's work Morane obtained the height and speed prizes, Thomas the prize for the longest single flight of 162½ kiloms. in 2 hours. 17 mins., and the total distance prize of 292½ kiloms., Simon being second with 237½ kiloms., Kuller third with 222½ kiloms., and Bielovucic's 187½ kiloms., Bielovucic's longest flight was 160 kiloms. in 2h. 31m. 11½s.

The second day opened with a somewhat violent wind which for the less experienced aviators was against flying, but this in no way stopped the keen competition which is now becoming at each meeting more apparent between aviator and aviator. Even the "first to start" prize of 500 and 200 francs is worth snapping up in these days, and at 11 sharp, as the official cannon announced the opening of the meeting, five machines were in line to secure this small bait, Audemars managing with his little Clement Bayard "Demoiselle" to get in front of Kuller, Thomas, Simon and Martinet by about ⅓ths of a second. The keenness for this prize brought about a slight accident between Thomas's Antoinette and Audemars' machine, fortunately without any serious results. The scramble for this being over, Bregi and Bielovucic both rose into the air, Parent on his Poullain-Orange following soon after, Martinet and Audemars returning to earth after about 18 minutes' flight. At 11.25 all general flying was stopped to give space for the Speed Contest. This was secured by Morane on his Blériot with 16 mins. 22½ secs. for the 25 kiloms., Simon also on a Blériot being second with 18 mins. 3½ secs., Audemars with his "Demoiselle" making a good third in 20 mins. Ruchonnet soon after the speed trial came near having a nasty accident, he continuing in the air beyond the finish of his turn, then descending with a *vol plane* found himself making for the lawn, and in order to avoid crashing into the public he took a sharp turn, his tail being caught by a gust of wind and sending him down from about 20 metres almost head first. Ruchonnet emerged from the damaged machine, however, unhurt, although a good many broken parts of the machine remained to testify to the sharp landing. For the long distance single-flight Thomas was first with 155 kiloms. in 2h. 13m., Bielovucic second with 80 kiloms. in 1h. 16m. 33s., Thomas's total distance for the day being 288 kiloms. and for the entire meeting to date 572½ kiloms., the next to him being Kuller with 397½ kiloms. Morane again secured the height prize with 990 metres, making a splendid *vol plane* in circles lasting close on 5 mins.



(1) (2) (3) (4) (5)  
AT THE TELLIER SCHOOL AT ETAMPES—SOME OF THE PUPILS.—(1) Prince de Nissolle; (2) Le Maire;  
(3) Hammersley; (4) Becue; (5) D. L. Santi. (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

# BRITISH NOTES OF THE WEEK.

## Brooklands to Hampton Court.

MR. D. GRAHAM GILMOUR using his Blériot on Tuesday evening made a noteworthy cross-country flight from Brooklands Aerodrome to Bushey Park. Taking his mechanic with him as passenger he rose well from the Brooklands grounds, making for Esher and thence to Hampton Court, over which he passed at a height of about 250 feet. After flying round and about Bushey Park for some time, finding the wind was getting overstrong, he came down with a good landing near the Long Water. Altogether he was in the air about an hour and a quarter.

## Flying in the New Forest.

DOWN at Messrs. McArdle and Drexel's New Forest aviation school at Beaulieu, business is very brisk with a number of pupils who are learning the art from these past masters in aviation. Some fine flights have been carried out by the two principals, and on Sunday evening last Mr. Armstrong Drexel made a trip on his Blériot machine over the New Forest, carrying with him Mrs. McArdle as passenger. After rising to a height of about 600 feet, and making several winding flights, he returned to the aviation grounds with an excellent gliding flight.

## Mr. Cody Again Flying.

SEVERAL times during last week Mr. S. F. Cody was practising on his new biplane. On Tuesday he made a fine flight at Aldershot, passing over South Camp, the Long Valley, Bourley Woods, Pyestock, Laffan's Plain and Farnborough, being in the air about 25 mins. in all. On Friday again he was up for about half an hour, flying round the district, and altogether his very substantial machine is shaping well.

## Doncaster Flying Week.

IT is now definitely arranged that the exhibition flights at Doncaster will take place next week from the 19th to the 24th, and the aviators names announced as having been engaged are Mlle. M. Dutrieu (Sommer), Marcel Hanriot (Hanriot), J. Mamet (Blériot), Ladougue (Goupy biplane), Bruneau de Laborie (Henry Farman), Kuller (Antoinette), and Paul de Lesseps (Blériot). The six days' show has been organised by Aviation Courses, Ltd., they having rented the Town Moor, Doncaster, from the Corporation for the sum of £750, the Corporation having no responsibility whatever in the matter. It is proposed that on Monday, September 26th, after the meeting, those aviators who are also engaged to appear at Burton-on-Trent shall make a flight direct from Doncaster to Burton.

## Burton-on-Trent Meeting.

MESSRS. BASS, RATCLIFFE AND GRETTON, LIMITED, having placed suitable land at the disposal of the organisers of the exhibition flights at Burton-on-Trent, the meeting will commence on Monday, September 26th, and last for four days. By way of inaugurating the flights, the aviators engaged—who will have been appearing at Doncaster—are to fly across country to the Burton flying grounds. A special "Bass Cup" for this achievement has been presented by the Burton-on-Trent Aviation Committee, the shortest time governing the award.

## Work at Brooklands.

EVERYTHING that can possibly be done to render the flying grounds at Brooklands suitable in every respect for their work is

being forwarded with the usual persistence which Major Lindsay Lloyd invariably brings to bear upon any undertaking which he enters upon. Once more the River Wey is being "coerced" into another channel to enable the getting-off ground to be extended, and without question the Brooklands aerodrome will in time become a centre of work, particularly for those entering upon the initial stages of the art of aviation. Day by day short flights are being maintained, and last week some excellent trips were carried out by some of the leading flyers who are stationed there. Mr. R. Wickham, on a Sommer machine, has been conspicuous by his work, and has made several lengthened journeys during which he has followed the motor track and soared over the club-house

near the racing straight, incidentally by three flights of 7 minutes, 20 minutes, and 20 mins. respectively, qualifying for his pilot certificate. M. Prevateaux, on a Humber, and M. Blondeau, on a Henry Farman, have both been making excellent flights, whilst Mr. Smith, on a Zodiac, has also been in the air. Mr. Neal's machine, under test, has been showing good form, and Mr. Thomas, on his Hanriot, promises well in the immediate future.



Mr. A. W. Gamage has invented a "non-concussion" flying helmet for which he claims great merits in protecting from danger aviators who may have upsets when flying. In our photograph Mr. Gamage himself is seen wearing one of these headgear.

## A Slight Mishap at Freshfield.

ON Friday last Mr. Higginbottom had a slight mishap when flying his Blériot monoplane at Freshfield, near Liverpool, the machine capsizing when landing, Mr. Higginbottom having a narrow escape from injury. Mr. Compton Paterson, who from afar saw the accident, at once flew off on his machine, taking with him his mechanic, to give assistance, and Mr. Paterson subsequently made several other journeys in connection with the damaged machine. As this was the first time Mr. Paterson had carried a passenger, it must be recorded as an extremely plucky performance.

## PARISOT'S RECKLESS EXPLOIT.

It is hardly surprising to learn that the Paris Prefect of Police has taken action following the very reckless exploit by Parisot on Friday of last week, when he made a flight starting from Issy and deliberately landed on the Esplanade des Invalides, fortunately no greater damage being done than a couple of smashed lighting standards and a wrecked aeroplane. No wonder, therefore, the police have communicated with the Aero Club of France and notified them that they shall take steps to prevent the repetition of such performances at the present time in public streets or congested districts. This is the first time that any notice has been taken by the French police of the doings of aviators, every encouragement being given them on every hand. It is to be hoped, therefore, that the warning so gently issued will be taken good heed of, lest worse befalls the whole army of flyers.

The exploit in itself was undoubtedly a bold one. Starting with a passenger from Issy at 5.15 in the morning Parisot was soon over the Seine and approaching the Eiffel Tower at a level of about the third stage up, he escaped what might have been a very bad smash by

running into a mist and passing within 50 metres of the Eiffel Tower without seeing it. To get his bearing he descended close above the Jardin des Tuileries, and passing over the Place de la Concorde he made a turning above the Grand Palais and made an attempt to cross over the Alexander Bridge with a view of alighting, which at first failed, but the second time he managed to obtain the direction he desired. Just as he was about to descend on the Esplanade a vehicle suddenly turned into his path which compelled him to alter his tactics, with the result that in landing he crashed into one of the big gas standards, which swung the machine round, damaging a second one and bringing the Henry Farman ultimately to rest. Neither Parisot nor his passenger were in any way injured, although the machine was badly broken up. M. Parisot is the same aviator who recently flew from Bouy to Chalons for the purpose of delivering a bouquet of flowers to his fiancée and who has since made a flight from Chalons to Issy, passing en route Fismes, Crepy-en-Vallois, Senlis, Gonesse, and the Valley of the Seine, a total of 250 kiloms.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Aviation Competitions.

**Baron De Forest Prize £4,000.**

**British Empire Michelin Cup and £500 Cash.**

The attention of members is drawn to the above competitions which close on December 31st next.

The rules are as under:—

### Baron de Forest £4,000 Prize.

Under the Rules of the International Aeronautical Federation. Baron de Forest has offered through the Royal Aero Club of the United Kingdom a prize of £4,000, to be competed for under the following conditions:—

1. The winner to be the aviator who, from a point fixed upon by himself, and approved by the Royal Aero Club, flies the longest distance from England to the Continent, the distance to be measured from the starting point to the point of descent.

2. No part of the machine shall touch land or water during the flight.

3. The competition to be open from January 1st, 1910, until December 31st, 1910.

4. The flight must be accomplished by means of a machine of the type designated "heavier-than-air."

5. The complete machine, i.e., the motor and all its parts, the planes, propellers, and all other parts thereof, must have been entirely constructed within the confines of the British Empire, but this provision shall not be held to apply to raw material.

6. The entrant, who must be the person operating the machine, must be a British subject, and domiciled in Great Britain or the Colonies or dependencies thereof for a period of at least two years prior to January 1st, 1910.

7. The flight must be commenced in the presence of official observers appointed by the Royal Aero Club.

8. Formal notice of entry must be sent to the Secretary, Royal Aero Club, 166, Piccadilly, W., not less than one month before the proposed flight, and the entrant must comply with all the regulations as to notices, observations, and other details issued from time to time by the Royal Aero Club.

9. In every case, notification of the first attempt to be made, under these conditions, must reach the Royal Aero Club, 166, Piccadilly, W., not less than forty-eight hours prior to such attempt, and in the case of all subsequent attempts, not less than twenty-four hours' notification must be given.

10. The entrant must supply satisfactory evidence of previous flights before making any attempt under these conditions.

11. The competitor must supply satisfactory evidence of the exact point of descent, signed by two witnesses, whose signatures must be attested.

12. In accordance with the rules of the International Aeronautical Federation, the entrant must be a member of, or obtain a permit from, the Royal Aero Club.

13. Should any questions arise at any time after the date of entry as to whether a competitor has properly fulfilled the above conditions, or should any other question arise in relation to them, the decision of the Committee of the Royal Aero Club shall be final and without appeal.

14. Each competitor agrees to waive all claim for injury either to himself or his apparatus, and agrees to assume all liabilities for damage to third parties or their property, and to indemnify the Royal Aero Club against any such claims.

### The British Empire Michelin Cup.

The following are the rules governing this cup for the year 1910:—

The Michelin Tyre Co. has presented to the Royal Aero Club of the United Kingdom, for competition by British aviators, a trophy of the total value of £500.

Annually, for five years, a replica of this trophy, together with a sum of £500 in cash, will be given to the successful competitor. This trophy will be competed for under the following conditions, which shall apply for this year only:—

**Conditions.**—1. The holder of the cup for 1910 will be the competitor who, on December 31st, 1910, shall have accomplished the greatest distance on any heavier-than-air machine without touching the ground.

2. The minimum distance to be covered in order to qualify for this prize shall be 38 miles round two or more mark posts for the necessary number of circuits.

3. Entries must be made in writing to the Secretary of the Royal Aero Club, 166, Piccadilly, London, W. At least two clear days' notice must be given by a competitor before making his attempt.

4. The entrance fee of 10s. and a further sum of £1 must accompany every notification of an attempt. Competitors, however, may give notice that they will compete from day to day and in such cases must pay a deposit of £10 to cover the necessary fees for attempts on ten consecutive days, which will be returned (less expenses incurred) in respect of those days on which no attempt is made. Every competitor must be a member of some recognised body dealing with aerial matters in the Empire, and shall, if called upon, satisfy the officials of the Royal Aero Club of his ability to fly at least 500 yards, before making any attempt under these rules.

5. All attempts must be made between the hours of sunrise and sunset, in the presence of the official or officials appointed by the Committee of the Royal Aero Club.

6. The recognised flying grounds of the Royal Aero Club are at the Isle of Sheppey, but the Committee will be willing to entertain any other ground subject to the competitor paying the necessary expenses incurred.

7. The start for the records will be reckoned from the crossing over the starting line in actual flight.

8. Competitors must be British subjects from any part of the Empire, manipulating a British-made machine. All the principal parts of a competing machine must be British made. All decisions applying to this rule shall be given by the Committee of the Royal Aero Club. This shall not be held to apply to raw material, but all finished or manufactured parts of such machine must comply with the above condition.

9. The decision of the Committee of the Royal Aero Club on all matters connected with this competition to be final and without appeal.

### Rolls Memorial Fund.

Members who have not yet sent in their contributions to the above Fund are requested to do so as early as possible. By limiting individual subscriptions to the sum of 10s. the Committee hope they will receive the support of all members.

It has been decided that the Memorial shall take the form of a bas-relief plaque, and that any surplus over and above the cost of the Memorial shall be devoted to the establishment of an **Aeronautical Library at the Royal Aero Club**, to be called the "**Rolls Memorial Library**."

Contributions of books to the "**Rolls Memorial Library**" will also be greatly appreciated.

A list of subscriptions received up to September 7th was published in the last issue, and the following have since contributed up to September 14th:—

F. P. Armstrong	Jack Humphreys
Miss Gertrude Bacon	Baron Clarke Keen
J. W. Beynon	Harry Keen
Gerald Biss	Capt. C. R. Kelly, R.A.
Lady May Boothby	V. Ker-Seymour
Lieut. F. L. M. Boothby, R.N.	Sir Thomas Lipton, Bart.
J. Arnold Bradshaw	H. Loeffler
T. B. Browne	Stephen F. B. Lynch
C. F. Chance	F. K. McClean
Capt. J. Sealy Clarke	J. McKelvie
Sir A. Cory-Wright, Bart.	Hugh F. Marriott
Maj. C. de W. Crookshank, R.E.	Viscount Massereene and Ferrard
G. H. Cuthbert-Gundry	Mrs. Mond
Count Henry de la Vaulx	Joseph C. Mount
L. de Riemsdyk	Mervyn O'Gorman
A. Norman Dugdale	James Barnes O'Hare
John Dunville	George Pauling
Mrs. John Dunville	G. Henry Pointer
W. H. Gardiner	Vivian A. Simon
Mrs. Murray Guthrie	Robert J. Smith
Geoffrey Harley	R. Masson Smith
Guy Hillhouse	Werner A. Trier
T. O'B. Hubbard	R. Woodhead
	<b>HAROLD E. PERRIN,</b>
	Secretary.

166, Piccadilly.



# FOREIGN AVIATION NEWS.

## Aero Club of France Disqualifications.

NOTICE is issued by the Aero Club de France of disqualification in connection with the Croix d'Hins meeting (August 20th), as follows: MM. Roger and Bichat (organisers), 16 months disqualification, ending December 31st, 1911; aviators: MM. Lezire (licence 174) and Vallon (licence 107), 1 month ending September 30th, 1910.

## Flying Round the Eiffel Tower—A Warning.

In view of the many aviators who are making the Eiffel Tower their turning point for their flights, the Aero Club of France have issued a warning in regard to the danger of passing too close to the wireless telegraphy installation on the Tower.

## Garros Flies Overseas.

ON a Clement-Bayard "Demoiselle" M. Garros on Friday last week made a good flight from Parancé to Dinard across the sea, passing over St. Malo *en route*, a 10,000 francs prize rewarding the feat. The next day he flew from Dinard to Cézembre Island and back in 8 mins. 12 secs., the distance being 15 kil. and thereby annexing a further 1,000 francs.

## Progress at Issy.

M. HENRY JACQUES, on his Vendôme monoplane, has been executing some excellent flights during the week, whilst Lieut. Bellanger, on his Blériot, was up at 400 metres for 15 mins. on the 7th inst. M. J. de Lesseps, on the evening of the 8th, was flying on his 2-seated Blériot for over an hour, and the next day for 15 mins. On the same day Caudron, on his S.A.F.A. biplane, was in the air, carrying out some further flights; on the 9th, Pareut, for his first essay on his Poulain-Orange monoplane, did well.

## Doings at Mourmelon.

MME. MARTHE NIEL, at the Koechlin school, who is at constant practice here, has now qualified for her pilot's certificate, and is the first lady pilot of a monoplane. Comte de Robillard was busy at the Antoinette school for 2½ hours, with a series of pupils on Thursday. Meyer flew for 15 mins., and Colonel Zelinski for 10 mins. Cure for his second essay ventured successfully over the neighbouring trees, and Esterre made a very fine flight for his second solo attempt. Commandant Feline, of the 6th Curassiers, and Captain Geyer were both taken up over the camp by Laffont on Friday last, and on Monday Mme. Niel executed two good trips across country on her Koechlin.

## Tabuteau at Biarritz.

AFTER carrying several passengers round the aerodrome on the 7th inst., Tabuteau executed an exhibition flight over the town and the golf links. When over the Hotel Regina at 300 metres he made a gliding flight almost down to the water; then restarting his motor he flew twice up the plage, circled the lighthouse, then returning to the aerodrome.

## Work at Etampes.

As usual military flyers have been, during the week, hard at work at the Henry Farman school, Lieuts. Bousquet and Orus specially distinguishing themselves. Bill took up Lieut. Orus as passenger on the 7th inst. On the 9th, at La Beauce, Mahieu and Herbster on their Farmans covered at least 250 kiloms. in lessons to pupils, and on the same day Lieut. Bousquet was flying alone, although it was only his seventh day at the school. Herbster, on Saturday, made a cross-country flight with Gaston Dauban, aged 13, as passenger. Leblanc, at the Blériot school, on the 7th, was trying a new two-seater for 40 mins. over the countryside, and Blanchard, on a racer, took a trip across the town, continuing his journey to Bagneux, 50 kiloms. away, where fog compelled him to descend. On Sunday, in spite of a strong wind, Leblanc carried nine passengers in succession in the two-seater, and was several times flying over the adjoining country.

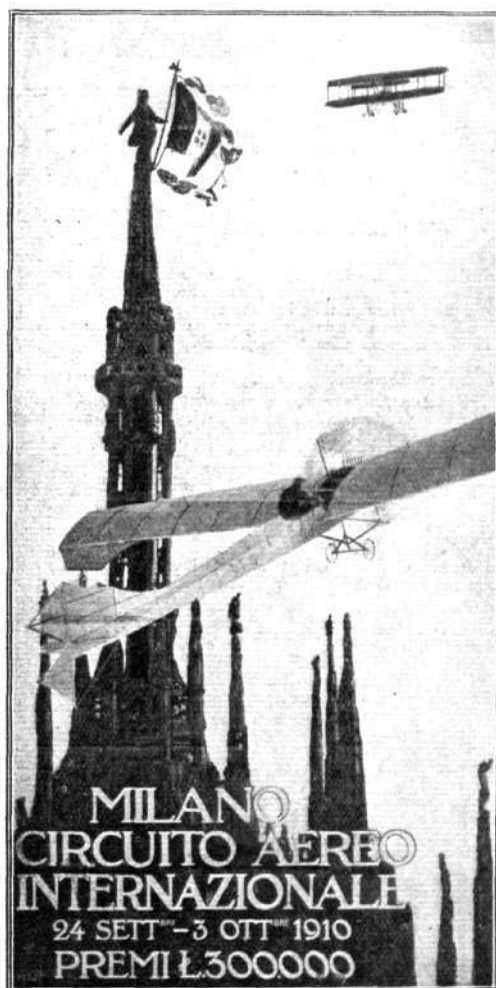
Good progress is being made at the Tellier school by Messrs. Hammersley, Santoni, Bécue and Le Maître, and Dubonnet, on Friday, made some good trips across country on one of the new Telliers.

## Other Doings.

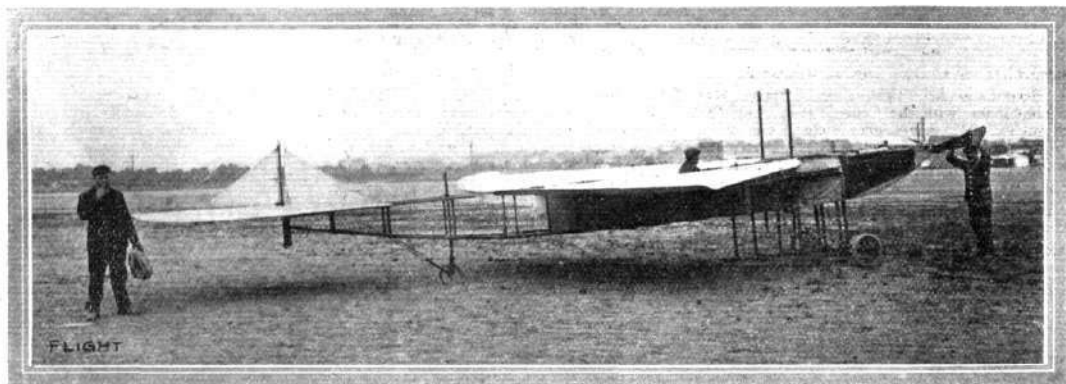
AT Amberieux, on the 7th inst., Moutier was flying for 25 mins.; on the 8th for 28 mins. Again on Monday he was out for 20 mins. over Courteliou and the surrounding country before returning to the drome. Princess Dolgorouki, at Chartres, on the 7th, after an excellent flight, broke part of the chassis in a too sudden landing. A trip of 45 mins. was put up at Juvisy by Champel on his Voisin on the 8th.

## Flying the Alps.

It looks now as if a serious attempt will be made during next week to effect the flight from Brigue to Milan across the Alps, a distance of 150 kiloms., as at least eight aviators have entered for a chance at the prizes of £4,000 offered. Latham, Chavez, Aubrun, Wienziers, Cattaneo, Parisot, Weymann, and Wynmalen are possible competitors, but as only five are allowed to take part, a choice of champions will have to be made. The authorities regard it as highly likely that several attempts will be made, and have issued special regulations in regard to traffic for the week ending September 24th, during which period flyers may compete. The regulations are extremely strict, all vehicular traffic being completely stopped between 5 and 10 a.m., and 4 and 6 p.m., with the exception of sixteen duly authorised motor cars, which will be directly associated with the competition, either as attached to the five selected entrants or the officials in charge of the traffic regulations and clubs concerned. Further, no vehicles are allowed to take up positions on any of the plateaus which are likely to be useful for the alighting of the aeroplanes, and any vehicle which happens to find itself *en route* between the prohibited hours must immediately draw to the side of the road, and remain stationary until the time for general traffic is reached.



The Poster (in colours) of the Milan Meeting.



Delabrosse and Christolet's variable monoplane with its wing extensions closed, giving 7 metres span.

#### Rheims Aerodrome.

AN Australian, Mr. Hammond, is at work at Rheims practising on a Sanchez-Besa, and on Monday for his second flight he was up for 25 mins., passing over the country side during his flight.

#### For the Michelin Prize.

WEYMANN is apparently not to be left to himself to carry off the Puy de Dome Michelin Prize, as already several other well-known aviators are credited with preparations for a try for this valuable prize. Mons. Jacques de Lesseps on his Blériot is authoritatively stated to be on the move, and Colliex, with a Voisin, is also mentioned as being a likely competitor.

#### Another Big Cross-country Flight.

STARTING on the 9th inst. from Mourmelon at 5.45 p.m., Michel Mahieu, accompanied by Gaston de Mauthé, the pair flew to Montmirail, arriving there at 7 p.m. Re-starting on Sunday at 6.15 p.m. for Rozoy, they left there on Monday at 6 a.m. for Etampes, where they came to earth at the Henry Farman school at La Beauce after a 3 hrs. trying journey.

#### A Belgian Cross-country Trip.

STARTING from Chatelet on the 9th inst., Lanser flew across country *via* Frasnes to the aviation grounds at Braine-le-Comte in 1 hour 20 min.

#### A Dutch Record.

AT Wolve, in Holland, Olieslaegers on the 7th inst. was flying for 53 minutes, thereby marking a new record for this country.

#### Flying Round Bucharest.

M. MOLLA during a flight on a Henry Farman of 61 minutes on the 8th inst. encircled the town of Bucharest.

#### At Johannisthal.

LIEUTS. HAAS and Von Mossner, two new recruits for the Wright machines, were out for a 20 kilom. trip on Monday last, passing over Rudow, Altghenicke and Gaunau and back.

#### Italian Records at Padua.

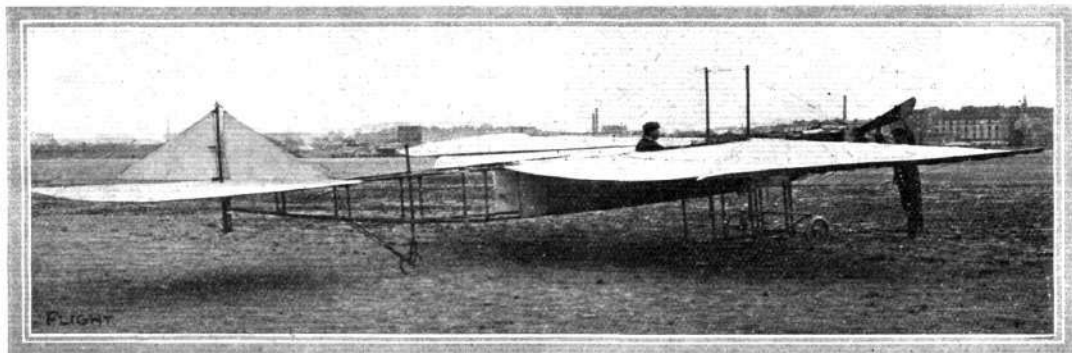
M. LEONINO DA ZARA, Vice-President of the Italian Aero Club, on the 12th inst., made some remarkable flights at Padua on his Henry Farman, beating the Italian records for height, with 500 metres altitude, for time and distance, with a 1½ hours cross-country flight, only descending within 25 kilom. of Padua by reason of fog.

#### Flying at Munich.

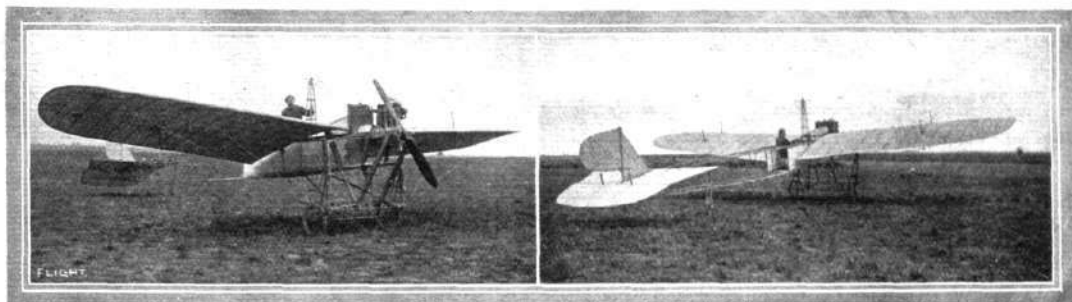
THE aviation meeting at Munich, which commenced on the 9th inst., was opened by Lindpaintner on his Henry Farman, he arriving from Puchheim and landing in the aerodrome. He later made several excellent flights, rising to a height of 250 metres. During the day Lindpaintner was in the air for 1h. 28m. 29½s., Jeannin being second with 27 mins. 38 secs. Lindpaintner also carried off the speed prize (10 kilom.) with 10 mins. 9½ secs., the height prize of 250 metres, and passenger prize of 16 metres. Jeannin, who was flying an "Aviatik" biplane, was timed for 10 mins. 58½ secs. over the 10 kilom.

#### Encouraging Flying in Germany.

FOR the National Flying Week at Berlin, taking place from October 9th to 16th, the Minister of War has offered a prize of £1,250 subject to a second prize of between £500 and £750 being provided by someone else. The £1,250 prize will be allocated as the first prize for one event. In addition the Minister has contributed a further sum of £450 for the Aviation Week. Count Zeppelin has come forward with the extra £500 specified by the War Minister.



DELABROSSE AND CHRISTOLET'S VARIABLE SURFACE MONOPLANE.—The machine with its "wings" fully extended, giving 9 metres span.



LATEST TELLIER MONOPLANE, SEEN FROM IN FRONT AND FROM BEHIND.—Mr. D. L. Santoni is in the pilot's seat.

#### Flying at Lucerne.

A FOUR days' meeting commenced at Lucerne on Saturday last, when, in addition to the Swiss flyers Dufaix Brothers, Kuhling, Amerigo, Taddeoli, Vallon and Failloubaz were engaged. The opening flight of the day was made by Kuhling, he taking wide circuits over the adjoining country-side.

#### Dirigibles and Aeroplanes at the French Manoeuvres.

To the envy of the whole of the rest of Europe are the French elaborate preparations and experiments with aeroplanes and dirigibles in connection with their Picardy manoeuvres now in progress. No less than 30 aeroplanes are already possessed by the French army, and orders for another 30 have been given, of which 17 are two-seated Blériots, and three single-seated machines. Many of the Farman's are also for two passengers. Three main aeronautical stations have been established in connection with the manoeuvres, the first at Briot in close proximity to Grandvilliers, the second at Formerie about ten miles distant, and the third on the Poix Plateau. In many cases the aviators who are taking part in the manoeuvres have flown under orders to the particular station to which they have been appointed, and the whole scheme is being carried out in the most elaborate manner for proving the real value and practicability of utilising these swift air machines for obtaining vital information of the movements of the enemy, and keeping up rapid connection between the different divisions of each army.

The Clement-Bayard airship has made a good start by sailing to its headquarters at Briot. Starting from Lamotte-Breuil at 9.15 she arrived at her destination at 11.30. *En route* she was utilising for the first time wireless telegraphy, and by this means was able to keep in touch, within a range of about 60 miles, with the wireless station, and thus communicate her progress through the air. On board her were Mons. Clement, the constructor, Engineer Sabatier,

Lieut. Tixier, who was in charge as pilot, Adjutant Baudry, assistant pilot, and two mechanics, Delacere and Vieillard.

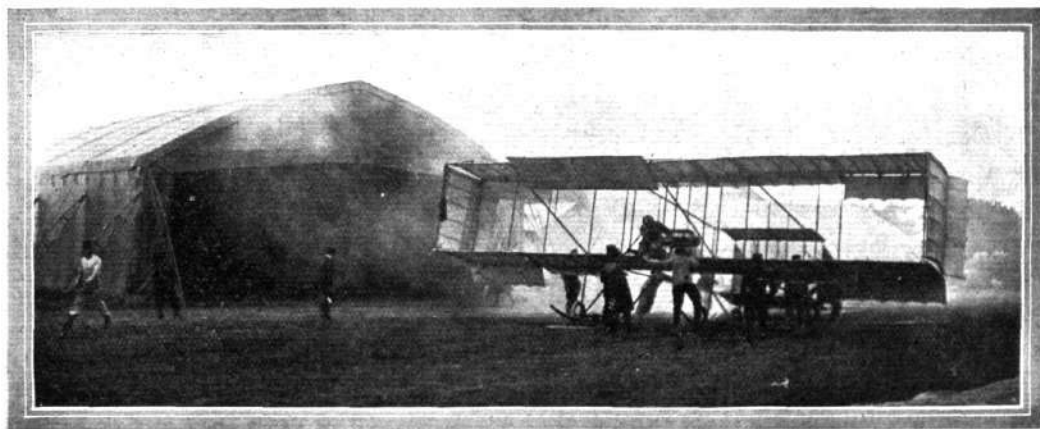
#### Mr. Grahame-White in America.

NOTHING seems to interfere with the success and first impression made by Mr. Grahame-White in America, and by his fine performance in connection with the *Boston Globe Prize*, on the 7th inst., he has secured £2,000 and won further golden opinions of his prowess as a leading flying man of the world. For this prize the conditions required a double flight—first from Soldier's Field at Cambridge to Boston Light in Boston Harbour, a distance of 7.65 miles and back. Upon the completion of the second of these flights, the city had to be flown over, the State House dome on Beacon Hill encircled, then back to Soldier's Field and twice round it, making the total distance to be flown 33 miles. All this Grahame-White carried out, his time being 40 mins. 1½ secs. He, therefore, takes this £2,000 prize as well as £4,420 further in cash, having scored 4 firsts and 3 seconds at this meeting.

In an attempt for the height prize he was up to 4,600 ft., his time being 16 mins. 49 secs.

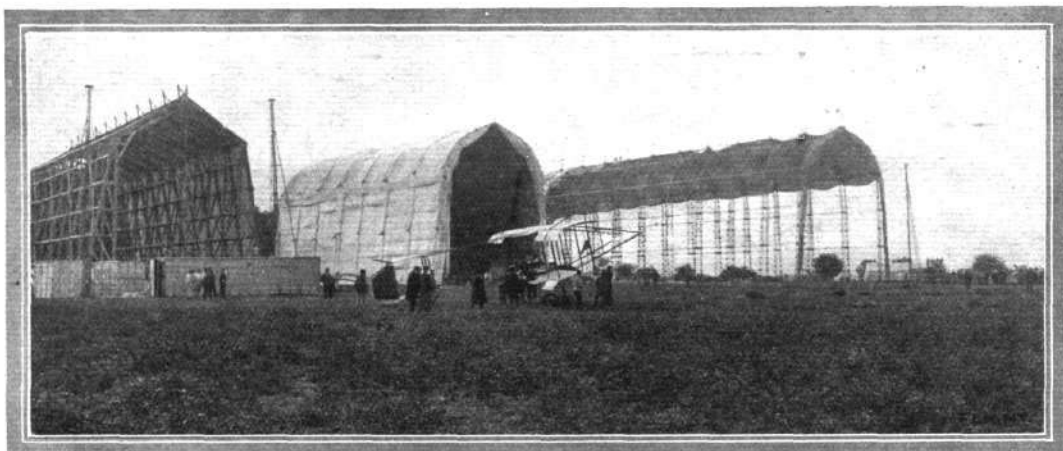
#### Charles K. Hamilton Injured.

ALTHOUGH very seriously injured, there is still some hope held out of the ultimate recovery of Mr. Charles K. Hamilton, the very successful American aviator, from the bad accident which he experienced on Friday of last week when making a spectacular flight at the Boston meeting. When alighting after a good win of a five-mile race against a motor car, the rudder of his biplane is stated to have jammed, thereby causing the machine to drop suddenly. Mr. Hamilton was unfortunate in being held fast between the steering wheel and the radiator, the scalding water from the radiator burning him badly, whilst it is feared there are internal injuries.



AEROPLANES AT THE FRENCH PICARDY MANOEUVRES.—Adjutant Menard just about to start on his biplane from Briot-Aviation to rejoin his post at Formerie.

# AIRSHIP NEWS.



**FRENCH PICARDY ARMY MANŒUVRES AND AERONAUTICS.**—General view of the dirigible sheds at Briot-Aviation. One of the Army biplanes will be noted in the centre of the picture.

## Mr. G. T. Willows Circles St. Paul's Cathedral.

A SURPRISE visit was paid to the city by Mr. Willows in his little dirigible on Saturday morning last, when, starting from the Crystal Palace at 11.30 in the morning, he sailed across London as far as St. Paul's Cathedral, where he circled round the dome at a fairly-high altitude. There was sufficient wind on the outward journey to compel Mr. Willows to tack somewhat against the breeze when nearing the Thames. It was about 12.20 when he made his turning movement round St. Paul's, and before travelling back he made a detour towards the Houses of Parliament, which he passed over, then making direct back for the Crystal Palace, where he arrived outside his own shed at 12.25, having taken 50 mins. on the outward trip, and 25 mins. on the return journey when the wind was in his favour. Whilst following the line of Fleet Street, on his way to the Houses of Parliament, he threw out a few cards by way of greeting to the press world, his course then being over the Strand, above Trafalgar Square, and then off to the left to the House. Mr. Willows' highest altitude during his trip was 2,000 ft., where a fairly strong wind was encountered necessitating a drop to 600 ft. Whilst passing round St. Paul's and the Houses of Parliament his height was about 1,000 ft.

## British Army Airship "Beta" at Work.

ALTHOUGH during the British manœuvres at Winchester the

British Army airship "Beta" was neutral, some very valuable observations were made by Colonel Capper, who was in charge of the dirigible, and his crew. From the "Beta" Colonel Capper was able to watch the troops of both the East Land and West Land divisions, while she was able, as pre-arranged, to convey despatches and to communicate with General Sir H. Smith-Dorrien, the airship passing over the headquarters' staff, when the officers were able to exchange information and convey from the car of the dirigible a sketch-map of the position of the forces as seen from the airship. The opinions upon the work which can be accomplished by this means are very contrary to those which an endeavour is being made to force forward in connection with the so-called fiasco at the German manœuvres, but although it may be proved that aeroplanes will be much more effective in the long run for certain purposes, vessels of the "Beta" type will undoubtedly be able to obtain for the General in charge much valuable information as to the progress of events outside the vision of those on *terra firma*.

## Airships in Germany and Fortified Positions.

THERE would appear to be considerable truth after all in the statement reported that the passenger trips by airship are to be regulated in such a way in Germany that the business will be considerably hampered in the future. The "Zeppelin VI" has already been stopped from carrying its passengers, it being



**AEROPLANES AT THE FRENCH PICARDY MANŒUVRES.**—General view of the aeroplane sheds at Briot-Aviation during the getting ready of the aeroplanes.



suggested that a number of foreigners are sailing in the vessel with the main object of obtaining photographs and particulars of military works over which they pass. It is suggested that special regulations are to be issued which will render it a serious offence for any unofficial dirigible to approach within 12½ miles of any fortified German position.

In regard to the performance of the German dirigibles during the manoeuvres, it hardly seems reasonable to suggest so readily that they are useless for any purpose whatever, simply because by a very clever strategy the section of the Army Corps which M3 was reconnoitring managed to deceive the occupants of the dirigible by the erection of an extensive series of decoy trenches, and bogey artillery and breastworks. These had been thrown up by the said Red Army for the specific purpose of deceiving the observers in the airship. By this trick the officers of the airship reported in such a way that the Blue Army were considerably deceived and attacked blindfoldly the decoy trenches, whilst the main body of the enemy was located elsewhere. Rather it should be argued that more experienced officers should be in charge for important duties of this character and better field-glasses supplied for the work. Considerably worse, of course, was the enforced descent of

"Parseval II" into the enemy's territory on the 9th instant, owing to a heavy thunderstorm, thus placing this valuable weapon in the hands of the Blues.

#### Chartering a Zeppelin.

As a matter of historical record, it is worth noting that for the first time a dirigible has been chartered in the ordinary course for a private trip in connection with a picnic. Baron Rudolph Goldschmidt Rothschild is reported to have engaged the passenger-carrying Zeppelin airship for the purpose of entertaining his friends one day this week, the fees being at the rate of £100 for the first two hours, and £50 for each additional hour.

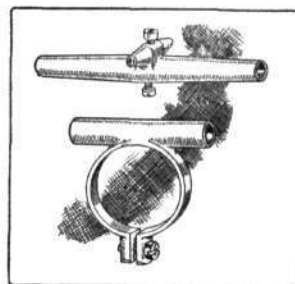
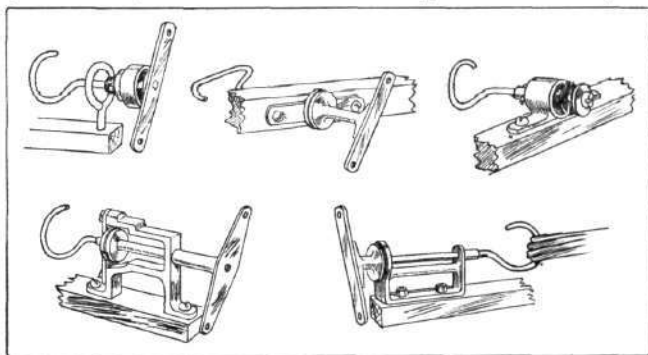
#### The Brussels Exhibition "Hoodoo."

THE airship "Belgique III," last week, during a trip with six passengers, when sailing about 2,000 ft. above the Brussels Exhibition, suddenly made a rapid descent for some unexplained reason. So sharp was the fall that the propeller was damaged by contact with the roof of the German section. Fortunately the vessel was able to rise again, and then came down none too slowly in an adjoining field a few hundred yards away, the occupants escaping with nothing more than a scare.

## "BONN" MODELS AND PARTS.

ALL amateurs and others who have had any experience with the firm and their productions are well aware of the thoroughly conscientious manner in which every little detail is attended to by Messrs. J. Bonn and Co., of New Oxford Street. These visiting the

arranged in pairs on either side of a couple of gear wheels, which wheels are in common mesh with a small toothed wheel on the shaft carrying the propeller. An enlarged view of the central portion of this motor is given beneath on the right, while to the left of it is an enlarged view of the other form of elastic motor that figures beneath. With this last-mentioned pattern the torque of the elastic is resisted by a celluloid tube that actually



premises, moreover, well know the willingness with which these makers invite personal inspection of their workshops, not only because they are actually makers and not merely agents, but also because of the thoroughness that characterises their organisation.

Some idea is conveyed of the range of component parts turned out by them, specially for inventors and for model makers interested in aeroplanes and other aircraft, by the accompanying illustrations.

contains the elastic strands and that receives metal caps at each end, serving respectively as an anchorage for one hook and for a ball thrust bearing behind the other hook, which carries the propeller. In the enlarged view the cap at the propeller end is being held away from the end of the celluloid tube, exposing to view the elastic.

## OUR SPEED-ALARM PRIZE.

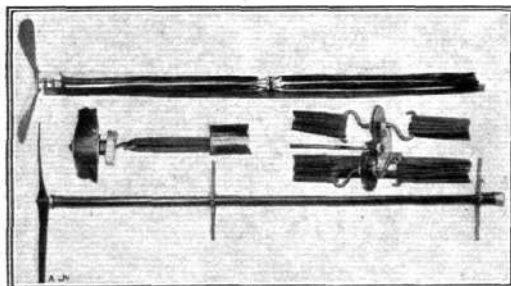
THERE seems to be a little doubt in the minds of some of our readers regarding the conditions of our Speed Alarm Prize so far as they affect the question of taking out patents and the making of experimental devices.

It must be clearly understood that we ourselves can have no financial interest in the success or otherwise of any design submitted, and we leave it entirely to competitors to take what steps they please to protect themselves by patents or to prove the practical value of their ideas by making their devices and getting them tried.

Realising that some of our readers possessed of good ideas on the subject might not have the opportunity to make experiments, and not wishing to curtail the scope of our offer, we purposely refrained from restricting the conditions in such a way as would have rendered it essential for the inventor to construct his apparatus. On the other hand it is obviously to the advantage of competitors to make their devices and to get them tried if they can, for if they do not do this they must take the chance of someone else being sufficiently impressed by their designs to do so instead.

It is open to anyone to construct a speed alarm to any of the designs published in FLIGHT if they have not been patented before their appearance. Patented devices are eligible for the competition, but since their protection precludes their trial by others it is necessary in this case for the inventor to make his own tests.

The date for closing is Oct. 31st., after which no designs can be considered as eligible.



One of these includes sketches of five different forms of thrust block, furnished with ball bearing, and suitable for elastic motors; while another of them gives a couple of sketches of small aluminium sockets, of which a very great variety of different patterns is stocked by this firm.

Yet another of our illustrations demonstrates photographically two types of complete elastic motors built for model aeroplane propulsion. In one of these all loss of power by end thrust is avoided, owing to the use of four independent lengths of elastic

## LATEST WRIGHT BIPLANES.

WHAT is, without question, the most important change that has yet taken place in modern aeroplane design is the absence of a front elevator from the Wright biplanes, a photograph of one of which machines appeared in last week's issue, on page 739. In the place of this member, which was so characteristically a Wright detail, there is now a horizontal tail mounted so that it can perform the purpose of an elevator in the same way that is done by a similar member on all monoplanes. The horizontal tail on the Wright biplane is situated immediately behind the vertical rudder, which, as before, consists of two planes placed side by side. In plan form, the tail is similar to the elevator member that it displaces, having straight leading and trailing edges converging to form pointed extremities.

One interesting feature of the new machines, which, by the way, are now being used by Johnstone and Brookins, is the retention of the semi-circular prow panels that formerly were located between the planes of the elevator. These members, which serve to enhance the sensitiveness of the machine to the rudder, are now situated at the forward extremities of the skids where they partly fill the triangle that is formed at this point by the intersection of the framework members supporting the skids.

The reason for making the above-mentioned changes in design is

to secure greater steadiness of flight in gusty winds. It has been recognised that the forward elevator on the Wright biplanes has always conferred great sensitiveness on these machines, but the advantage accruing therefrom, from the point of view of control, appears to have been neutralised by the disadvantage of the system in very windy weather. The elevator, when in front of the machine, is exposed to the elements, but when behind the main planes it is situated in a region where the "weather" conditions are less subject to sudden fluctuations. This is because the wake of the machine is relatively steady and generally sufficiently positive in character to maintain this zone of its own creation inviolate from the surrounding air, and if the directive organs of the machine are situated within the limits of this field, they are, so to speak, insulated from outside influences without being deprived of their efficiency. This, at any rate, is the general theory underlying the principle in question, and it would appear from the flights that have up to the present time been made with the new machines at Asbury Park as if the contention was substantiated in practice.

The span of the new Wright biplanes is 39 ft., and the chord 5½ ft. They are being driven by the standard 30-h.p. 4-cylinder Wright engines.

## CORRESPONDENCE.

\*. The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in **FLIGHT**, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

### BOMB GUNS.

[752] In **FLIGHT** for September 3rd, under the heading of "Bomb Guns for Aeroplanes," you state that an "arrangement of mirrors shows the operator exactly when the tube is pointing directly to the object he wishes to strike, and by merely pressing a button the door is released and the bomb drops to its mark."

This is incorrect, as any object dropped from an aeroplane will not fall vertically downwards, but partaking to a certain extent of the forward velocity of the machine, will land far in advance of the object aimed at. The high-speed aeroplane used for the purpose of dropping bombs is a dead failure. For this purpose the dirigible balloon easily scores, as it could be brought to a stop over any desired point, and bombs, or anything else for that matter, dropped with accuracy. One must not forget, however, that it is impossible to make sure of hitting an object when at an height of over 3,000 ft., and to come to a stop at anything below this with machine guns handy on *terra firma* is, to put it mildly, asking for trouble—and getting it.

Burton-on-Trent.

E. JONES.

### ROTARY ENGINES.

[753] I really wonder that you publish such letters as those which appeared in your issue of last week, signed by The Dreadnought Rotary Engine Syndicate and James Bett for the D.R.E. Syndicate.

In both cases the writer shows extreme lack of business ability, and the worst possible taste, and especially in "going for" Mr. C. A. Fletcher and his engine as he did.

Here we have an unknown firm which (so far as the general public knows) has never built an engine of any sort whatever running down the work of a man "who has built an engine and got good results out of it."

The notification of the fact that the D.R.E. Syndicate is "open to encourage successful inventors of aerial engines" speaks volumes in my humble opinion. If the syndicate has the best engines and all the brains available upon engine work, why does it not ignore all comers?

We shall see when the engine does appear, and I would like to bet that its advent does not frighten the Gnome people much.

"Rotary engine," just think it out, why rotary at all? I am an engineer of many years experience upon the highest class work, and I have had twelve years with petrol motors of every make. I have made a thorough study of the job, and I believe the aerial motor of the future will be stationary, with a revolving crank-shaft.

Mr. Bett will put a few pounds sterling and weight on the scrap-heap before he gets a motor half as good as a Gnome.

YANK.

### ROTARY ENGINES AND PROPELLERS.

[754] It was with interest that I read the letter of the "Dreadnought" people (No. 725, **FLIGHT** No. 88) taking up the cudgel with Mr. C. A. Fletcher, of Manchester, with regard to his rotary engine.

As I have been so fortunate as to see this engine running, I trust that I may be allowed to say a few words in regard to the matter.

The "Dreadnought" Syndicate states that this engine seems to be 4 ft. 6 ins. in diameter! From my recollections I make it 2 ft. 8 ins., and I am sure that the makers are to be congratulated upon making it in such a small compass, considering the robust construction of its parts.

In regard to construction, I may say that the outside of the cylinders, even if not altogether cylindrical, could be machined on a rotary milling machine so that they were all of the same section and weight, so disposing of the "out of balance" danger.

In regard to the holes in the cylinder-walls being used as auxiliary exhausts, I should be of the opinion that it would be a benefit, as it would have a scavenging effect, due to the velocity through the air.

May I enquire of the "Dreadnought" Syndicate in what form they propose to arrange the 18 cylinders in their 160-h.p. engine, as it seems as if the 4 ft. 6 ins. they wish to saddle on to Mr. Fletcher's engine will be eclipsed, and furthermore I should not care to stand in line of rotation when it was working at 1,000 revs. per min. (?)

As the "Empress" engine is to be seen by anyone at the present moment, would it not be to the advantage of the "Dreadnought" and the "Boyd" people to exhibit one of their own build, so that the public would be able to judge for themselves the various merits and demerits of the same?

May I be allowed to venture my opinion that the conquest of the air does not lie entirely with the "light weight" engine, as an engine such as the "Empress," combined with an efficient propeller, would give greater reliability than we have at present. I may say that I have designed and constructed for a noted aviator, for a biplane of his own construction, a 4-bladed propeller, 6 ft. 10 ins. diameter, 9 ft. pitch, which at 520 revs. per min. gives a thrust of 143 lbs. and absorbs 77-h.p. Is there ONE wood propeller that can show such results? "I don't think!"

After numerous careful experiments, I have arrived at the conclusion that there is *only one* correct inclusive angle of the blades of a propeller, and also that the central five-eighths of the diameter of the propeller is no good at all as a propelling medium, but only acts as a brake, and tends to churn the air.

With regard to the construction of these steel propellers, the objection up to the present has been that the joints gradually became loose, owing to the intense vibration to which they are subjected; but against this I may state that they can be manufactured out of one sheet of steel plate, by suitable presses, and ribs pressed into them to serve to make them stiffer, and if made in sufficient quantities their cost would be exceedingly low, in fact considerably lower than the outrageous price of the wooden propellers now on the market.

While we are on the subject of propellers, I may as well mention the letter (No. 729, **FLIGHT**, No. 88) by T. J. Bennett.

Some months ago I approached a well-known aviator on the subject of tandem propellers. It was due to the accident to Lieut. Selfridge and Orville Wright, and evolved a scheme of driving similar to the one shown, but with the exception that the propeller shafts (telescopic) were connected by differential gear and the propellers were to be of the same pitch as each other, but that the back propeller would naturally revolve faster than the front one.

If the back propeller was of a steeper pitch than the front one, I am afraid that Mr. Bennett would find a difficulty when the front propeller and engine failed to work.

In conclusion may I be allowed to state that if we have a more efficient propeller, we are at liberty to increase the overall strength of the aeroplane, and so do away with the flimsy structures one sees nowadays. Apologising for the length of this letter, and trusting that you will be so kind as to insert it in full.

Chesterfield.

JOHN KIRKEY.

### THE DREADNOUGHT ROTARY ENGINE PATENTS.

[755] In reply to letter No. 740, by Mr. C. A. Fletcher, and to letter No. 741.

Of course, we are unable to understand exactly how the Empress engine is constructed, as we have only seen the photograph published in *FLIGHT*, but we rather suspect that this engine is an infringement of the "Dreadnought" patents.

We are well aware that rotary engines have been in existence for many years and that the general principle of a rotary engine is unpatentable matter.

We would remark, however, that if a search be made at the Patent Office, several hundreds of patents will be found, each being for a different combination of rotary mechanism, but mostly all were ultimately abandoned as being useless in practice, as they consisted of the wrong combinations, combined with freak mechanism. Our combination is different to all the others—and produces a new result—and this result we have secured by adhering to mechanism of extreme simplicity, and by avoiding all freak mechanism that attempts to do the impossible.

This is our position, and we intend to fight for our rights, and will tolerate no infringements of our patents. Legal action will be taken not only against actual manufacturers of such engines, but against selling agents and aviators that use them.

THE "DREADNOUGHT" ROTARY ENGINE SYNDICATE.

[In view of the purely abstract nature of this correspondence it must now cease—at any rate, until such time as the "Dreadnought" Rotary Engine Syndicate is in a position to publish precise technical details or the numbers of their patents.—ED.]

### THE TEASDALE-BUCKELL MACHINE.

[756] The following particulars and sketches relate to my machine, about which I wrote, in the correspondence columns, some while ago.

Each main plane consists of a helically corrugated cylindrical surface, an end view of which is given in Fig. 1.

These planes are disposed so as to rotate end on to the draught of tractor-screws, and the axis of the helix cylinder is disposed at such an angle to the plane of the screws' rotation that when it is assumed that the rush of air from such screws is at right-angles to the plane of the screws' rotation, the outer corrugations on each plane are parallel to the rush of air.

When the outer corrugations are parallel to the draught, the inner corrugation (*i.e.*, on the opposite vertical sides) are tilted to the draught, as in an ordinary plane, and to an angle equal to twice the angle of the helix thread from a plane vertical and parallel to the axis of the helix cylinder.

To explain the action of the helix planes when free to rotate on central frictionless bearings reference is made to Fig. 3. In this figure a four-bladed helix, with its axis disposed end-on to the reader and tilted at a positive angle, is shown. The helix rotates on a central bearing, being caused to rotate by the action of a horizontal draught impinging on the blade, *A*. This draught is deflected downwards owing to the resistance to rotation caused by the paddle action of *C*. The blade, *C*, being parallel to the draught, produces direct down-thrust on the air met by it during the down stroke. The blades at positions *B* and *D* do practically no work owing to slip. There are, therefore, two resultant forces: (*a*) aeroplane action at *A*, and (*b*) paddle action at *C*.

If the angle of the helix thread is that of the best aeroplaning angle, it is obvious that to bring the blade at position *C* horizontal (*i.e.*, parallel to the draught) the helix must be tilted at an angle equal to the angle of the helix thread; the angle of the blade at position *A* is therefore doubled, while the angle at positions *B* and *D* remain the same.

The blade at position *A* is, therefore, an aeroplane travelling upwards, and its upward motion is equivalent to that of an aeroplane fixed but disposed at an angle equal to the helix thread; further, its upward motion dispenses with the necessity for dipping edge; roughly, therefore, it is claimed for the blade at position *A* the best possible aeroplane action, *i.e.*, lift, with the least proportion of drift.

At position *C*, paddle action may be termed lift without drift.

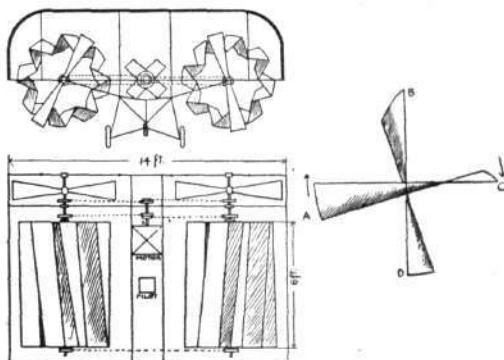
I claim that this is the exact mechanical equivalent of bird's wing-action during flight, for on the upstroke the wing-action of a bird in flight is that of an aeroplane, and on the downstroke that of a paddle; on the upstroke a bird may at will do no work at all, the wing being merely lifted by wind-pressure according to the speed of its flight; a bird may, by retarding this lift of wing, obtain aeroplane action and retain by this means its elevation, using paddle-action for maintaining its speed. On this theory of flight, the faster the flight the faster the wing action.

Sketch 1 shows this principle applied to the construction of a cylindrical plane. Each plane consists of a forward and after strut of metal, an end view of which is shown in Fig. 1. Longitudinal tie-rods connect the two struts in the form of the required helix, whilst the fabric is wound in and out of the longitudinals and suitably fastened. Suitable supports from the end struts are taken to central hubs.

The planes are hung on the main framework, as shown in plan in Fig. 2, and act in the draught of tractor-screws driven from a central motor.

The dimensions of the main-planes are: diameter 5 ft., depth 6 ft., depth of corrugation 2 ft.

The helix planes are so built up as to rotate in opposite directions, the screws rotating similarly from a crossed drive.



The direction of rotation is from inside to outside; the paddle action is therefore on the outside of the planes.

Approximately 3 ft. above the main planes, and supported from the main framework, is an ordinary cambered plane curved down at the extremities to half the depth of the helix planes. By this curve the upper halves of the helix planes are protected from beam-winds, whilst the lower parts are open to it. By connecting the two rotating planes by a belt, the rate of rotation of each plane is equal. A beam-wind will therefore strike the lower portions of the plane, and increase rotation and paddle action of both planes, which is, I believe, a utilisation for the first time in aeronautics of a side-wind.

As the whole of the planes are working in the draught of the tractor-screws the machine does not depend upon its forward motion for lift, and since the draught from screws is far higher than any draught that can be obtained from forward motion in the present stages of the navigation of the air, and since lift varies as the square of the velocity of such draught, it is considered within the bounds of possibility to obtain direct lift from this machine, though the power-driven model is not quite completed, and no actual trial has as yet taken place.

Assuming therefore that with my motor working I obtain greater lift than is possible with planes that do not work wholly in the draught of the screws, or in the induced draught of propellers, considerably reduced weight in the motor and framework (consequent on the reduction in power required for lift) allows of the machine's ability to glide, although the total overall length and breadth of the machine is far less than that of any machine that has as yet appeared before the public.

The reduction of the centres of pressures on each plane to a point on the axis of the cylinders reduces the possible turning



moments to a minimum, since the centres of pressure are but 4 ft. from the centre of gravity.

Further, the centre of gravity is well below the centres of pressure. Taking into consideration that the rate of rotation, and therefore the work done by the main planes are equal, that the total width of the machine is only 14 ft. and the proximity of the centres of pressure to the centre of gravity the machine may be said to be automatically laterally stable, certainly far more stable and more easily controlled than the ordinary cycle.

Elevator and tail planes may or may not be used, a point that is being left entirely to practical experiment; if not used, the helix planes are adapted to be used as longitudinal centrals. Fig. 4 shows a general view.

C. TRASDALE BUCKELL, R.N.

## The "Bristol" Aeroplane at the Manœuvres.

ON Tuesday last at the flying school of the British and Colonial Aeroplane Co., Ltd., at Lark Hill, Salisbury Plain, some trial tests were carried out by Captain Dickson, the well-known aviator, with the "Bristol" biplane he will use in the forthcoming Army manœuvres. This aeroplane was specially built for the purpose at the Filton works of the British and Colonial Aeroplane Co., and is fitted with a 50-h.p. Gnome engine. It was only commenced on August 17th, and yet it was delivered on Saturday last. Early on Tuesday Captain Dickson took it out for its first trial, when it did a fine flight and showed great stability in the air. A few minor adjustments were then made, and the trials were resumed in the evening, when the wind had moderated to about 12 miles an hour. On this occasion Captain Dickson made some magnificent flights for a long distance over the surrounding country at a height of about 200 ft., finishing several of them with very fine *vol planes*, landing on each occasion with great skill and smoothness. In view of the coming manœuvres these flights were watched with the greatest interest by a large number of officers from the neighbouring camps, and a considerable number of the public were also interested spectators of this fine exhibition of the new "Bristol" biplane.

In the final week of the manœuvres, Captain Dickson expects to give a number of exhibitions of the use of aeroplanes in warfare, showing their possibilities for despatch carrying, reconnaissance and observation duties. It will no doubt give the liveliest satisfaction in military circles that the machine to be used in the British Army manœuvres will be of British manufacture.

## IMPORTS AND EXPORTS, 1910.

Aeroplanes, airships, balloons and parts thereof (not shown separately before 1910).

Imports.		Exports.		Re-Exportation.	
	£		£		£
January ...	2,516	January ...	750	January ...	550
February ...	437	February ...	2,950	February ...	—
March ...	7,516	March ...	128	March ...	600
April ...	6,305	April ...	950	April ...	1,470
May ...	846	May ...	400	May ...	350
June ...	7,961	June ...	642	June ...	558
July ...	11,608	July ...	336	July ...	830
August ...	6,188	August ...	812	August ...	1,455
8 months ...	43,377	8 months ...	6,968	8 months ...	5,813

## NEW COMPANIES REGISTERED.

**Aviation Contracts, Ltd.**, 4, London Wall Buildings, E.C.—Capital £2,000, in 1,900 ordinary shares of £1 each and 2,000 management shares of 1s. each. Manufacturers of and dealers in aeroplanes, balloons, or other devices for aerial navigation or progression, motor cars, carriages, wagons, &c.

**Piccadilly Motor and Aeroplane Co., Ltd.**—Capital £1,000, in £1 shares.

## PUBLICATION RECEIVED.

*Formulaire pour la Construction des Aeroplanes.* By A. Guirionnet. Paris: Librairie Aéronautique, 32, r. Madame. Price 3 frs.

## OFFICIAL RECORDS.

**Distance and Duration.**—Ollieslaegers (Belgium), at Rheims, on a Blériot monoplane with Gnome engine: 244,309 miles in 5h. 3m. 58s.

**Speed.**—J. Radley (Great Britain), at Lanark, on a Blériot monoplane with Gnome engine: 1 mile in 47½ secs. = 75.95 m.p.h.

**Altitude.**—J. A. Drexel (Great Britain), at Lanark, on a Blériot monoplane fitted with Gnome motor: 6,750 feet in 52 mins.

## Aeronautical Patents Published.

Applied for in 1909.

Published September 15th, 1910.

- 19,265. C. LORENZEN. Screw propellers.  
 19,619. W. F. ZELGER. Flying machines.  
 19,731. W. TATTERSALL. Aeroplanes for use with aerial vessels.  
 20,530. E. A. VERSEY. Flying machines.  
 20,846. A. J. ARNOLD AND V. F. FORBES. Aerial machines.  
 24,774. H. LANE. Propulsion of flying machines.  
 25,062. A. E. GEORGE AND — JOBLING. Aeroplanes.  
 27,072. G. H. M. CANTON AND P. G. UNNE. Fluid pressure engines for aerial machines.  
 27,851. N. SIMPSON. Flying machines.

## DIARY OF FORTHCOMING EVENTS.

### British Events.

1910.  
 Sept. 19-21. Folkestone.  
 Sept. 19-24. Doncaster.

### Foreign Events.

1910.  
 Sept. 11-18. Bordeaux.\*  
 Sept. 24-Oct. 3. Milan.\*  
 Sept. 25-Oct. 3. Biarritz.  
 Oct. 8-16. Ostend.  
 Oct. 15-Nov. 2. Paris Aero Show.  
 Oct. 17-25. St. Louis. Gordon-Bennett Balloon Race.  
 Oct. 29. New York. Gordon-Bennett Aviation Cup.  
 Dec. 4-18. Marseilles.

\* International.

## BACK NUMBERS OF "FLIGHT."

SEVERAL back numbers are now very scarce, and have been raised in price as follows:—

1909.			s.	d.
No. 2, Jan. 9,	containing	Table of Propellers ...	1	6
6, Feb. 6,	"	"How Men Fly" ...	0	6
		Aeronautical Bibliography.		
8, " 20,	"	Wright Bros.' Elevator Patents.	1	0
		Flying Ground at Farnbridge		
		Illustrated Glossary.		
10, Mar. 6,	"	Human Side of Flying ...	1	0
		Aero Club Ground at Shellbeach.		
		Military Aeronautics.		
12, " 20,	"	Souvenir Supplement ...	1	6
15, Apr. 10,	"	Engines at Olympia ...	1	0
16, " 17,	"	Prize List ...	3	6
		Models at Olympia.		
31, July 31	"	Blériot Flyer ...	2	0
		(Full page drawing.)		

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